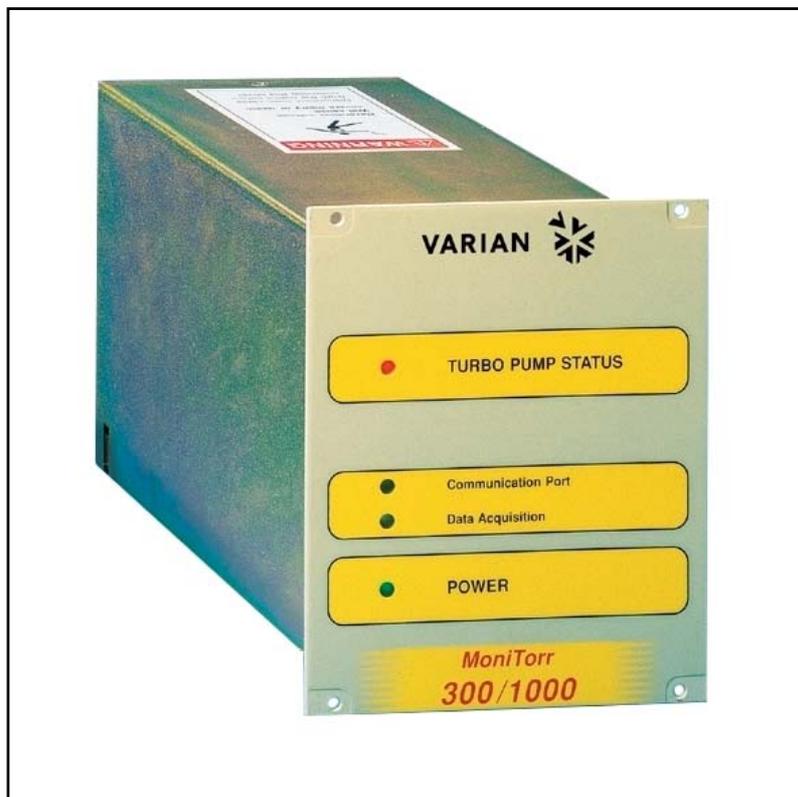


# ***MoniTorr***

**Model 969-9251**  
**Model 969-9252**  
**Model 969-9253**  
**Model 969-9254**

*INSTRUCTION MANUAL*

# *MoniTorr*



**VARIAN**



*vacuum technologies*

*Dear Customer,*

*Thank you for purchasing a VARIAN vacuum product. At VARIAN Vacuum Technologies we make every effort to ensure that you will be satisfied with the product and/or service you have purchased.*

*As part of our Continuous Improvement effort, we ask that you report to us any problem you may have had with the purchase or operation of our product. On the back side you find a Corrective Action Request form that you may fill out in the first part and return to us.*

*This form is intended to supplement normal lines of communications and to resolve problems that existing systems are not addressing in an adequate or timely manner.*

*Upon receipt of your Corrective Action Request we will determine the Root Cause of the problem and take the necessary actions to eliminate it. You will be contacted by one of our employees who will review the problem with you and update you, with the second part of the same form, on our actions.*

*Your business is very important to us. Please, take the time and let us know how we can improve.*

*Sincerely,*

**Sergio PIRAS**

*Vice President and General Manager  
VARIAN Vacuum Technologies*

*Note: Fax or mail the Customer Request for Action (see backside page) to VARIAN Vacuum Technologies (Torino) - Quality Assurance or to your nearest VARIAN representative for onward transmission to the same address.*

**CUSTOMER REQUEST FOR CORRECTIVE / PREVENTIVE / IMPROVEMENT ACTION**

TO : VARIAN VACUUM TECHNOLOGIES TORINO - QUALITY ASSURANCE

FAX N° : XXXX - 011 - 9979350

ADDRESS: VARIAN S.p.A. - Via F.lli Varian, 54 - 10040 Leinì (Torino) - Italy

E-MAIL : marco.marzio@varianinc.com

NAME _____	COMPANY _____	FUNCTION _____
<p>ADDRESS : _____</p> <p>TEL. N° : _____ FAX N° : _____</p> <p>E-MAIL : _____</p>		
<p>PROBLEM / SUGGESTION :</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
<p>REFERENCE INFORMATION (model n°, serial n°, ordering information, time to failure after installation, etc.) :</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: right;">DATE _____</p>		

<p>CORRECTIVE ACTION PLAN / ACTUATION (by VARIAN VTT)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>LOG N° _____</p>
--	---------------------

XXXX = Code for dialing Italy from your country ( es. 01139 from USA; 00139 from Japan, etc.)



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**OVERVIEW**

This equipment is intended for professional use. Before using such equipment, the operator must carefully read this instruction manual and any other additional information provided by Varian. Varian declines all responsibility regarding the total or even partial failure to comply with the instructions provided, the improper usage of the equipment by untrained personnel, unauthorized interventions or usage that fails to comply with specific national regulations. The MoniTorr controller utilizes solid state components and has autodiagnostic and self-protection features.

This device analyzes the operating conditions of the turbopump so as to predict any possible pump failure caused by excessive bearing wear. The system continuously monitors the pump, storing in memory all the data relating to the latest period of operation.

The MoniTorr allows to:

- perform programmed maintenance on the turbopump
- continuously monitor and store the turbopump controller-MoniTorr system operating conditions
- identify the wear conditions of one or two bearings.

The following sections provide all the information needed to guarantee the operator's safety when using the equipment. Detailed information is provided in the appendix entitled "Technical Information".

**The following conventions are used in this manual:**



**DANGER!**

The Danger messages attract the operator's attention to a specific procedure or step that could cause serious injury if not performed correctly.



**WARNING!**

The Warning messages are provided before procedures that could damage the equipment if not observed.

**NOTE**

Notes contain important information extracted from the text.

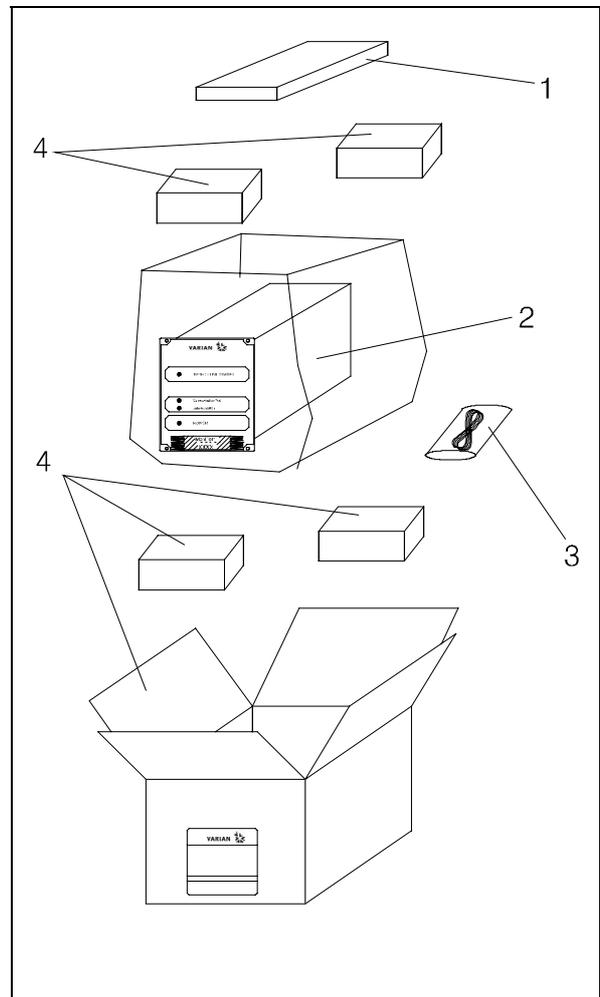
**STORAGE**

The following environmental conditions must be complied with during the MoniTorr transportation and storage:

- temperature: from -20 °C to +70 °C
- relative humidity: 0 - 95% (non-condensing)

**BEFORE INSTALLATION**

The MoniTorr comes in a special protective packaging; if you detect any sign of damage that may have been caused during transportation, contact your local sales office. When unpacking the MoniTorr, be particularly careful to avoid dropping or bumping it. Do not dispose the packaging material in the environment. This material is completely recyclable and complies with the ECC directive 85/399 that safeguards the environment.



*MoniTorr Packaging*

1. MoniTorr instruction manual
2. MoniTorr unit
3. MoniTorr accessory envelope
4. Packaging

**INSTALLATION**



**DANGER!**

The controller comes with a three-wire power cord equipped with internationally approved plugs. Always use this power cord and insert the plug into an appropriately grounded socket to avoid electrical discharges.

There are voltages inside the controller that could cause serious injury or death. Before proceeding with any controller installation or maintenance procedure, unplug the controller from the electrical outlet.

**NOTE**

*The controller can be installed either on a table or inside an appropriate rack. In both cases the cooling air flow must circulate freely inside the apparatus. Do not install nor use the controller in environments exposed to atmospheric agents (rain, frost, snow) dust, aggressive gases, in explosive environments or with a high risk of fire.*

The following environmental conditions must be complied with during operation:

- temperature: 0 °C to +40 °C;
- relative humidity: 0 - 95% (non-condensing).

Refer to the section "Technical Information" for the procedures regarding installation and connection to the related pump.

**USAGE**

This section provides the major operating procedures. For more information and for the procedures that involve connections or options, refer to the section "Usage" in chapter "Technical Information".

Before using the MoniTorr perform all connections and refer to the manual of the connected pump.

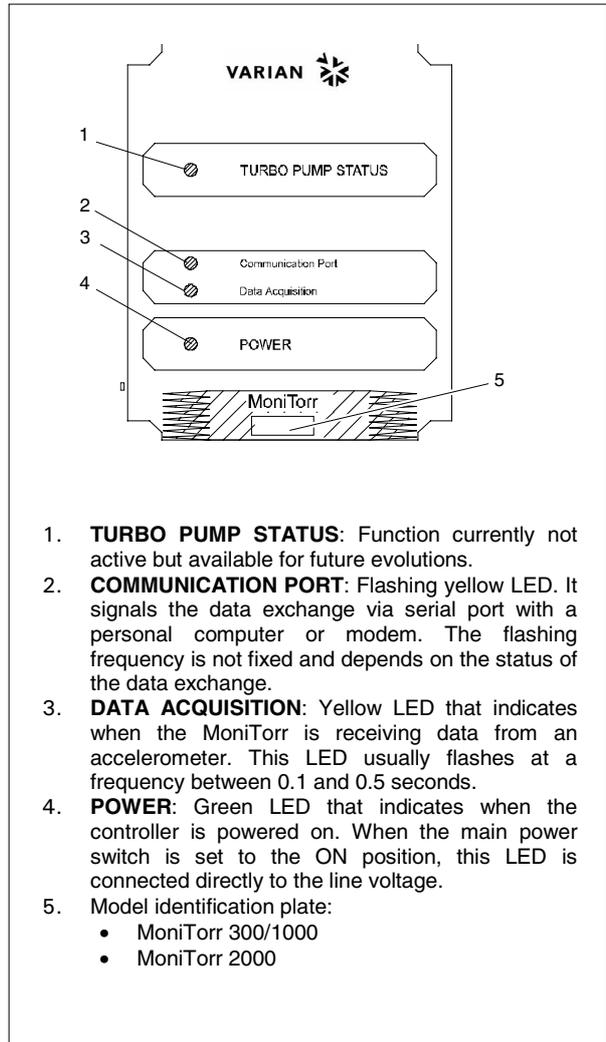


**DANGER!**

To avoid personal injury and damage to the apparatus, if the pump needs to be rested on a table make sure that the table is stable. Never operate the pump if the input flange is not connected to the system or not closed by the closing flange.

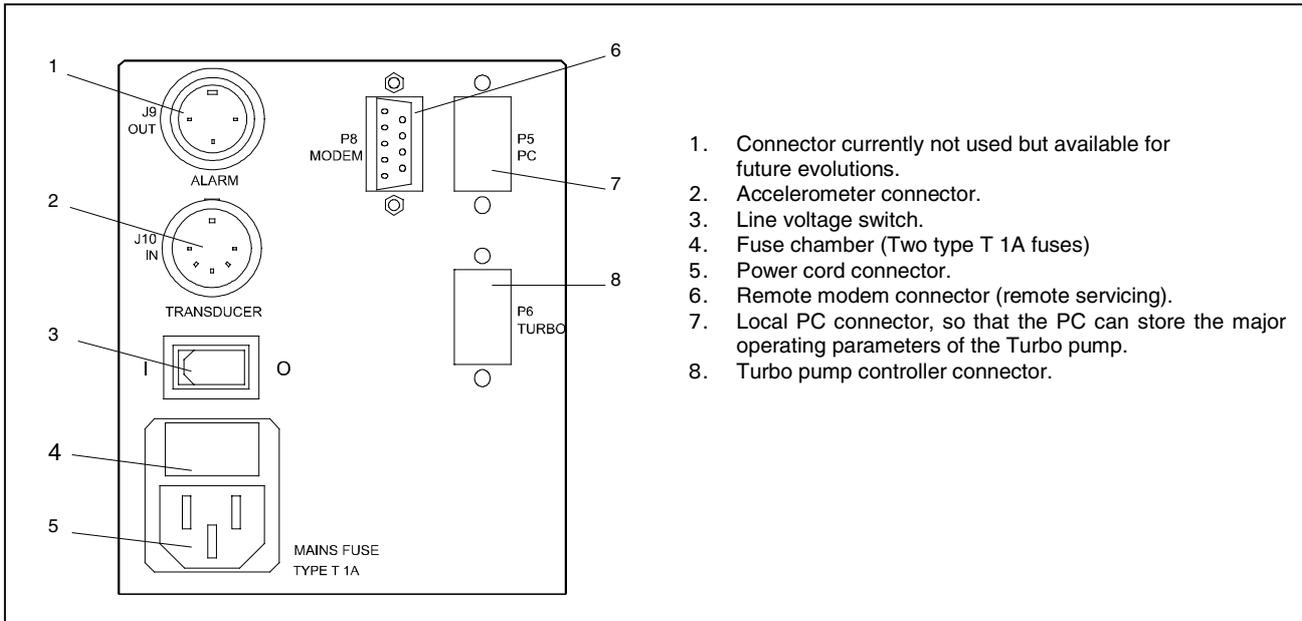
**Controls, LEDs and Connectors**

Shown below is the controller's control panel and interconnection panels. For more information refer to the section "Technical Information".



1. **TURBO PUMP STATUS:** Function currently not active but available for future evolutions.
2. **COMMUNICATION PORT:** Flashing yellow LED. It signals the data exchange via serial port with a personal computer or modem. The flashing frequency is not fixed and depends on the status of the data exchange.
3. **DATA ACQUISITION:** Yellow LED that indicates when the MoniTorr is receiving data from an accelerometer. This LED usually flashes at a frequency between 0.1 and 0.5 seconds.
4. **POWER:** Green LED that indicates when the controller is powered on. When the main power switch is set to the ON position, this LED is connected directly to the line voltage.
5. Model identification plate:
  - MoniTorr 300/1000
  - MoniTorr 2000

*MoniTorr 969-9251, 969-9252  
969-9253 and 969-9254 Front Panel*



1. Connector currently not used but available for future evolutions.
2. Accelerometer connector.
3. Line voltage switch.
4. Fuse chamber (Two type T 1A fuses)
5. Power cord connector.
6. Remote modem connector (remote servicing).
7. Local PC connector, so that the PC can store the major operating parameters of the Turbo pump.
8. Turbo pump controller connector.

*MoniTorr 969-9251, 969-9252, 969-9253 and 969-9254 Rear Panel*

**USAGE PROCEDURES**

***Powering on the MoniTorr***

Power on the MoniTorr by plugging the power cord into the electrical outlet and setting the line voltage switch to the I position. The POWER LED comes on and the system proceeds with its selfconfiguration routine by automatically detecting the type of pump and controller connected. Data acquisition and processing will be automatically activated the moment in which the turbo pump reaches its maximum speed (set using the controller's Speed Adjust parameter).

***Operation***

At predefined intervals, the system will also store data related to the vibration spectrums, power and temperature in addition to other data detected by the Turbo controller thus making it possible to analyze the history of the entire Turbopump-Controller-MoniTorr system throughout the latest period of operation. All the data stored in memory can then be transferred to a PC (by means of the appropriate software; refer to Technical Information) where it is stored and where it can then be analyzed by specialized personnel.

**MAINTENANCE**

The controllers of the MoniTorr series do not require maintenance. Any intervention must be carried out by authorized personnel.

In case of failure, the Varian Repair Service is available or Advanced Exchange Service that provides you with a regenerated controller in replacement of the faulty one.



Unplug the power cord before proceeding with any type of intervention on the controller.

If a controller needs to be scrapped, proceed in compliance with the specific national norms.

**MONITORR CONTROLLER DESCRIPTION**

The MoniTorr is a controller with a microprocessor-based electronic architecture and with dimensions equivalent to 1/4 of a rack. It can work with either the ICE series controllers or with HT series controllers delivered by Varian later than 01/10/98.

The system has been designed to continuously monitor the turbopump to which it is associated and to maintain in memory all data regarding the turbopump's last period of operation (default = 1 month).

The MoniTorr can work autonomously, replying to the queries received from the local PC via RS232 or remotely via modem (optional).

It is available in the following four versions:

MoniTorr Model	Pump Type	Controller Model
969-9251	TV300 ICE	969-9433/9533
	TV 550 ICE	969-9434/9534
	TV 700 ICE	969-9446/9546
	TV 1000 ICE	969-9447/9547
969-9252	TV 2000 ICE	969-9448/9449
	TV 2000 HT	969-9462/9562
969-9253	TV 300 HT	969-9424/9524
	TV 550 HT	969-9444/9544
	TV 700 HT	969-9445/9545
969-9254	TV 1000 HT	969-9454/9554

The MoniTorr is physically connected to the pump's controller from which it receives certain parameters.

For example:

- Current absorption
- Power absorption
- Temperature of the upper bearing

The accelerometer secured to the turbopump detects the spectrum of the low frequency (150 - 2,000 Hz) and of the high frequency (2,000 - 12,000 Hz) vibrations.

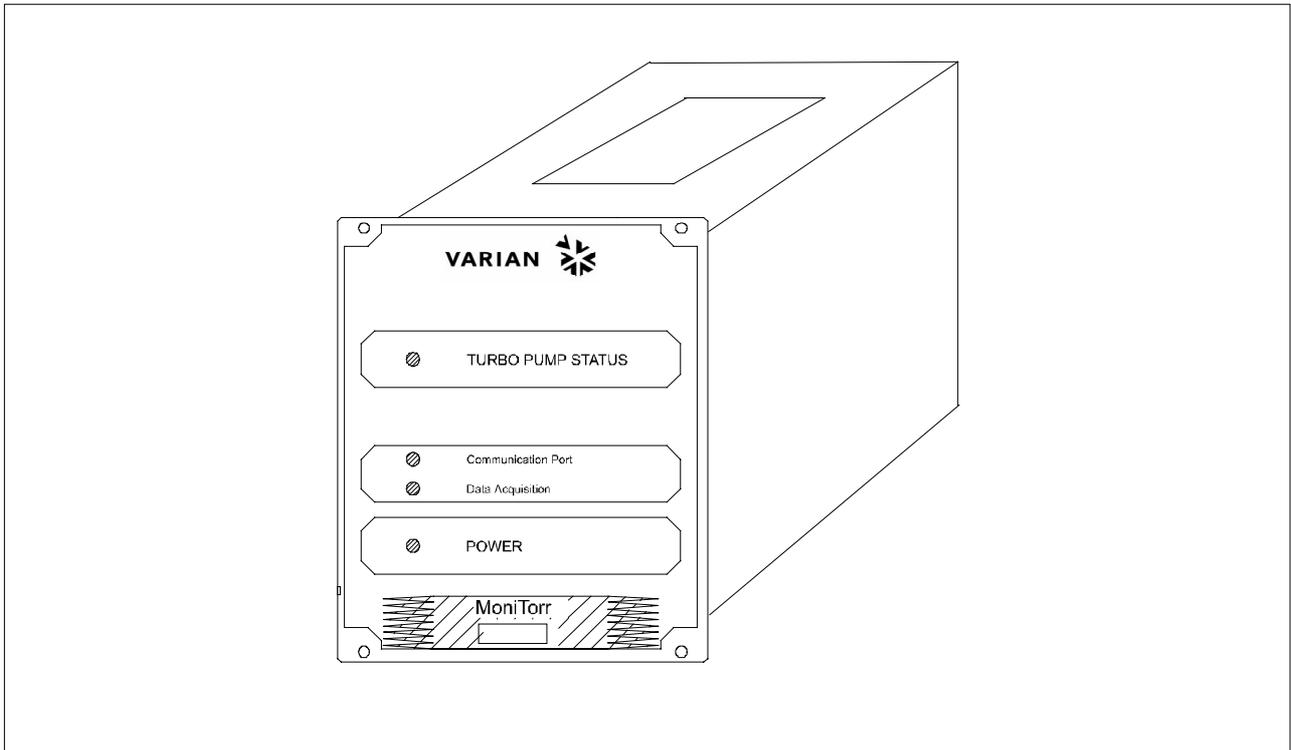


**WARNING!**

The MoniTorr controller is equipped with a 3-wire power cord and plug (internationally approved) for user's safety. Use this power cord and plug in conjunction with a properly grounded power socket to avoid electrical shock. High voltage developed in the controller can cause severe injury or death. Before servicing the unit, disconnect the input power cable.

The following subsystems are embedded into the PCB:

- Power supply
- Amplifier and filter of the signals from the accelerometer
- Signal acquisition logics
- Microprocessor
- 1 MB Flash EPROM used as the mass storage memory
- Serial data exchange management clock and logic
- EEPROM for the storage of the configuration parameters



*MoniTorr Controller*

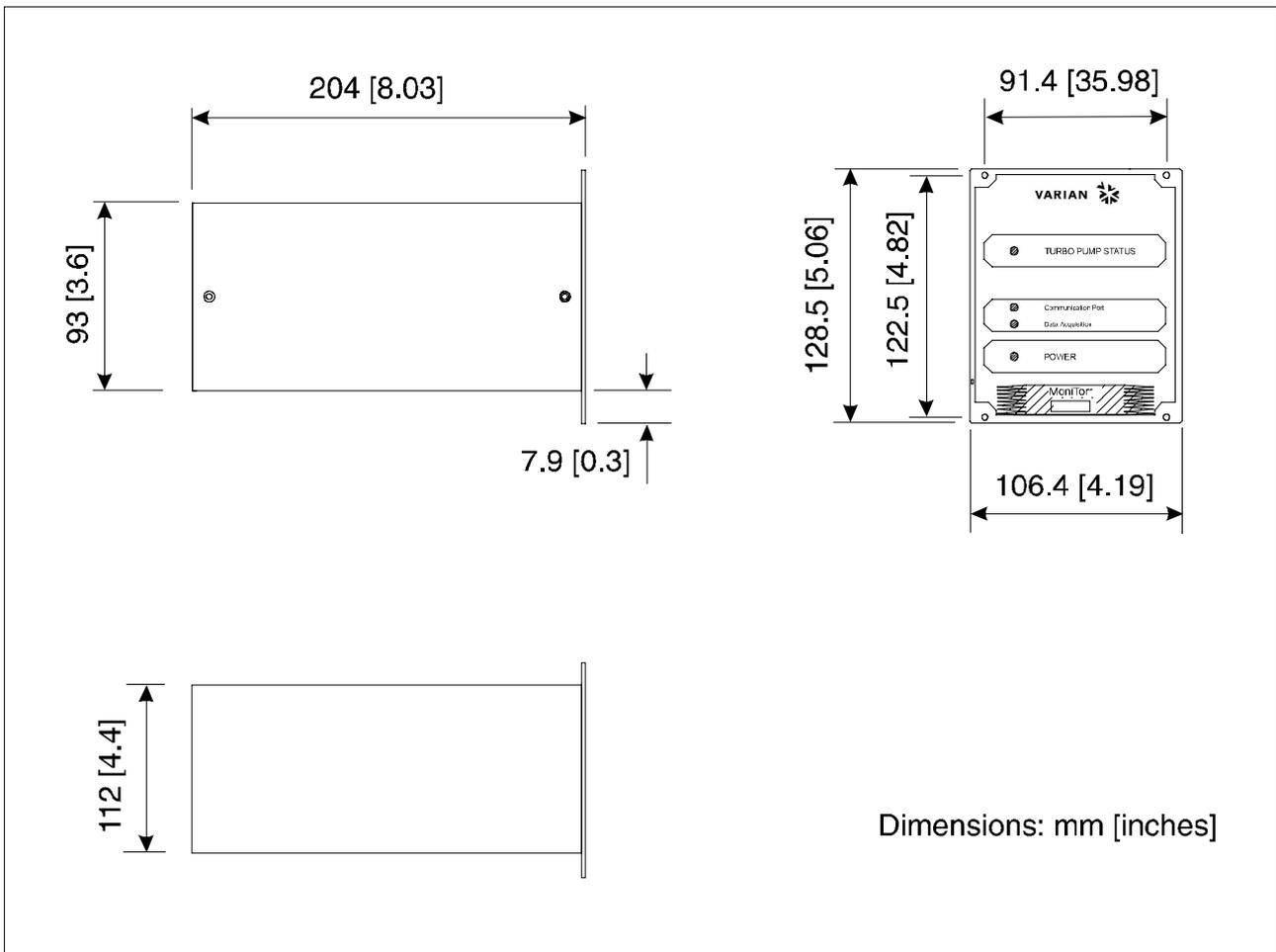
**CONTROLLER SPECIFICATIONS**

Operation	300/1000 HT/ICE 2000 HT/ICE
Input:	
Voltage	90 260 Vac 1-phase
Frequency	47 to 63 Hz
Power	30 VA maximum
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Fuse (mains)	2 x T 1A (slow blow) disregarding the mains
Radio interference suppression	EN 55011 class A group 1 IEC1000-4 -2/3/4

Safety	EN 61010 - 1
Cable	<ul style="list-style-type: none"> <li>• Mains, 3 meters long</li> <li>• RS232 serial cable for connection to the pump controller</li> <li>• RS232 serial cable for connection to the local PC</li> <li>• Cable with accelerometer</li> </ul>
Weight:	1.7 Kg (4 lbs)

**CONTROLLER OUTLINE**

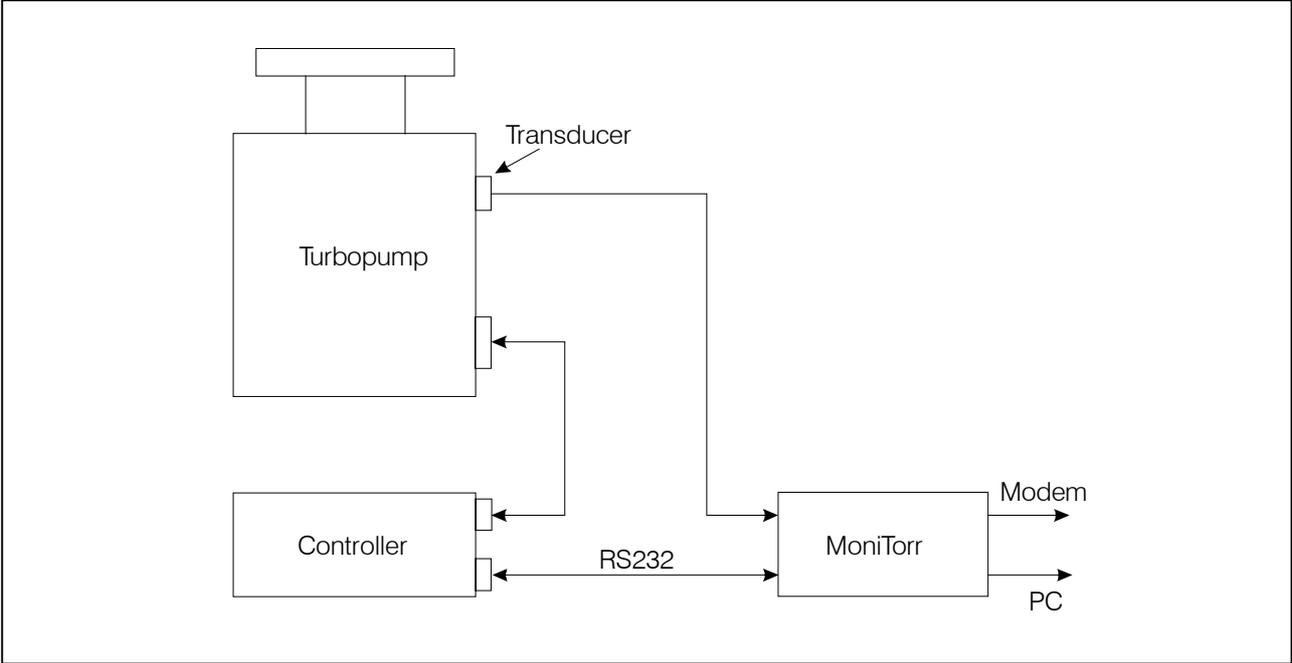
The outline dimensions for the MoniTorr controllers are shown in the following figures.



*Controller Outline*

**INSTALLATION**

The following block diagram provides a schematic approach to the connections to be made for a correct MoniTorr installation.



Installation

When performing the connections shown in the diagram above, pay close attention to the installation of the accelerometer.

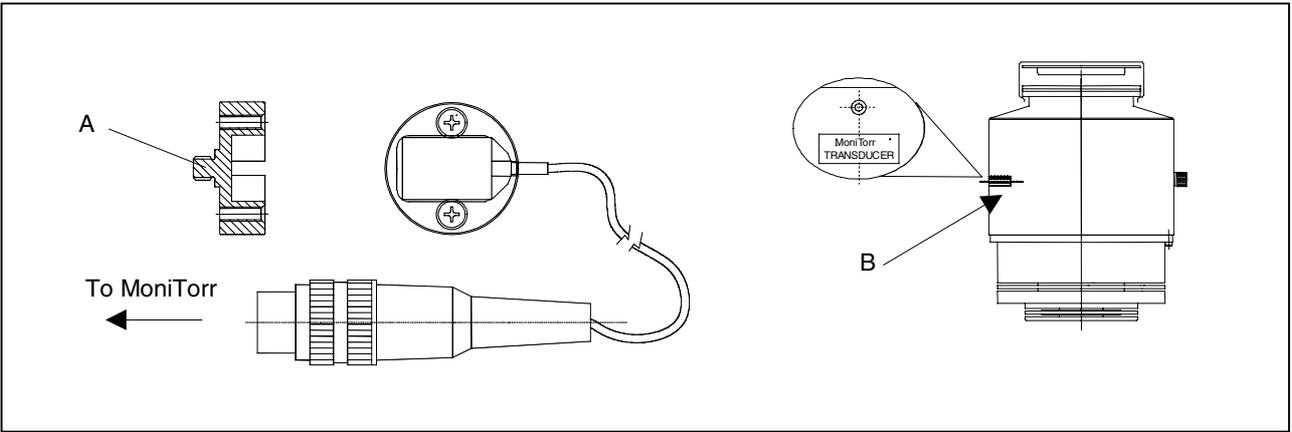
**Accelerometer Installation**

To correctly install the accelerometer on the turbopump, use the specific support according to the type of pump being used.

**Installation Procedure for the Turbo-V 300/550/700/1000/2000 ICE and 2000 HT Pumps**

Proceed as follows for a correct installation:

- Secure support **A** to threaded blind hole **B** present on the pump.

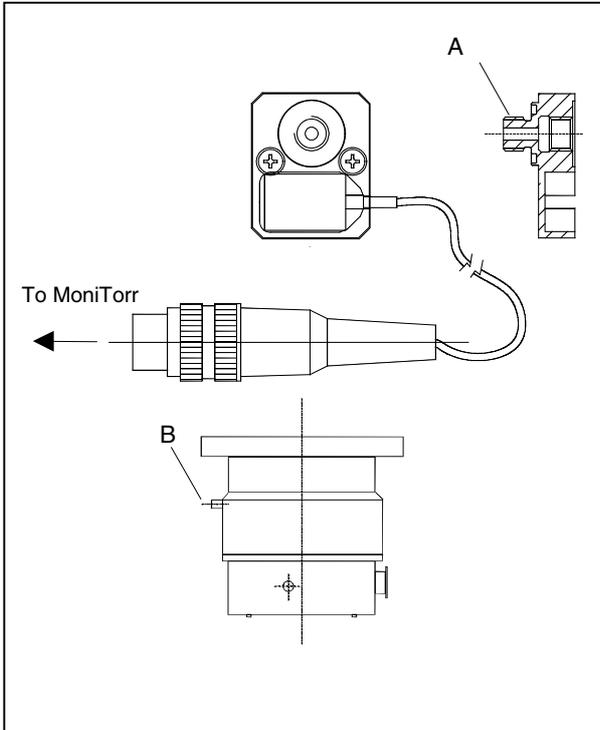


Accelerometer Support for ICE and 2000 HT Series Turbopumps

**Installation Procedure for Turbo-V  
300/550/700/1000 HT Pumps**

Proceed as follows for a correct installation:

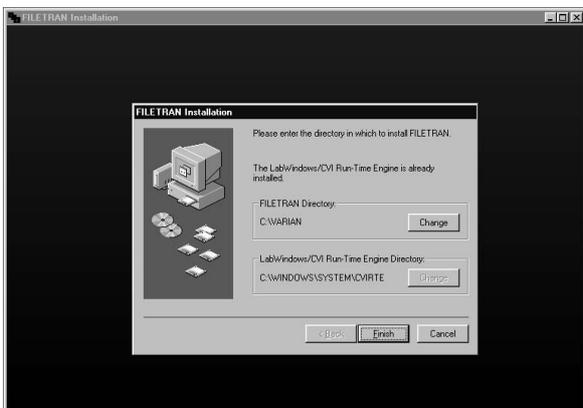
- Secure support **A** to pump vent port **B** (there still is the possibility of installing a Vent Valve).



*Accelerometer Support for HT Series Turbopumps*

**Installing the Transfer Software**

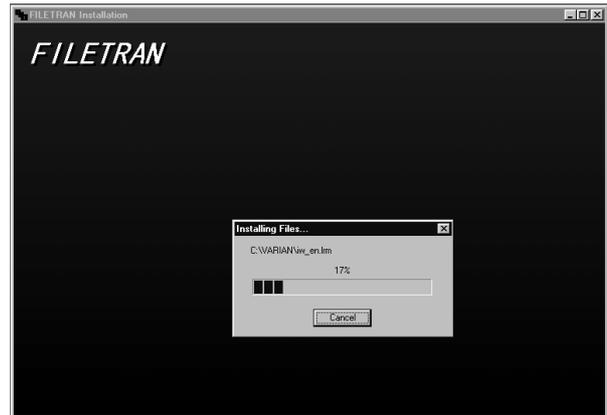
The MoniTorr is provided with the software needed to transfer via RS232 all the data stored. To install the software simply insert the diskette into the PC drive and then launch the Setup file. The following screen will be displayed on the personal computer monitor:



**NOTE**

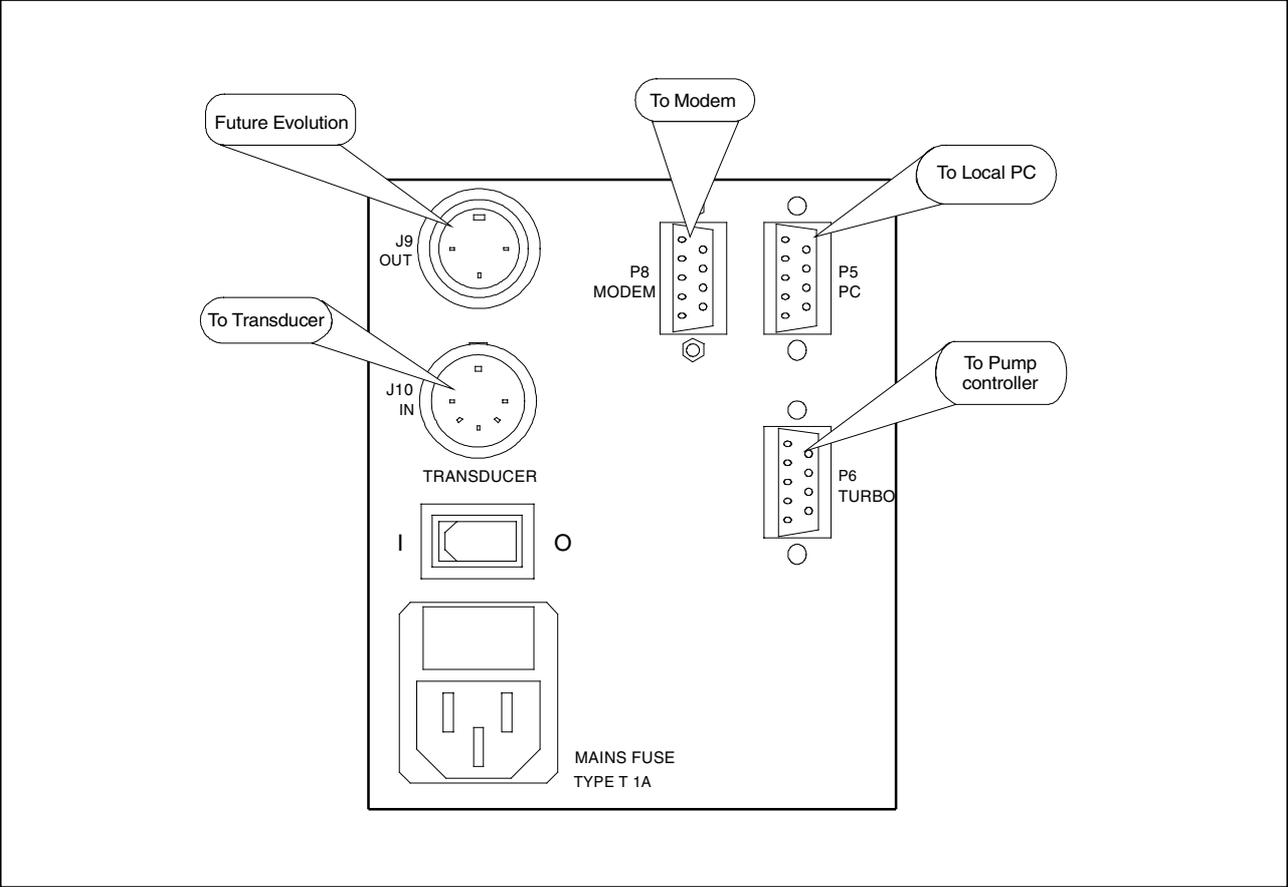
*It is suggested that you maintain the directory and path proposed so as to facilitate the identification of the files generated by the system.*

Click on the Finish button to continue with installation. The following screen will be displayed on the personal computer monitor. The program's activation icon will be generated at the end of the installation procedure.



**INTERCONNECTIONS**

The following figure shows the controller's interconnections.

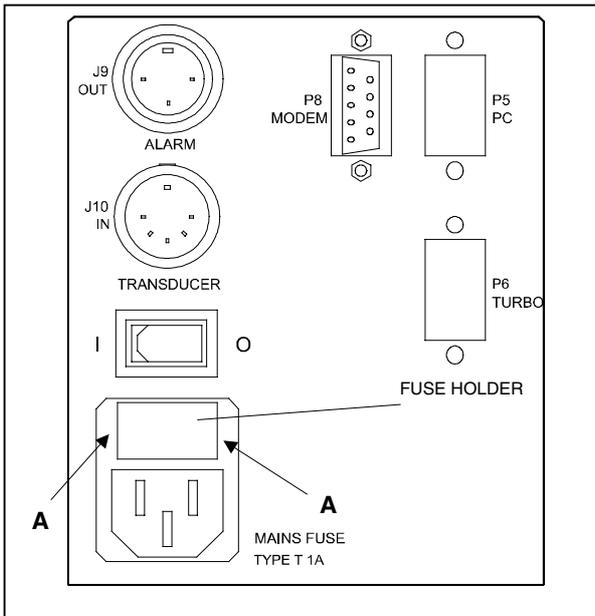


*Controller Interconnections*

**FUSE HOLDER**

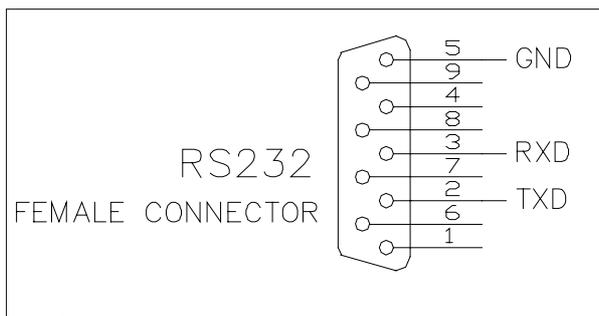
Proceed as follows to replace the fuses:

- Unplug the power cord from the controller rear panel socket.
- Using a small screwdriver, pull out the voltage selector and fuses by levering in position **A**.
- Replace the fuse.  
Use only T-type fuses of the following characteristics:  
- 1 A (slow blow)



Rear Panel

**P5 RS 232 - Data Exchange Descriptions**



RS 232 Data Exchange Serial Port Connections

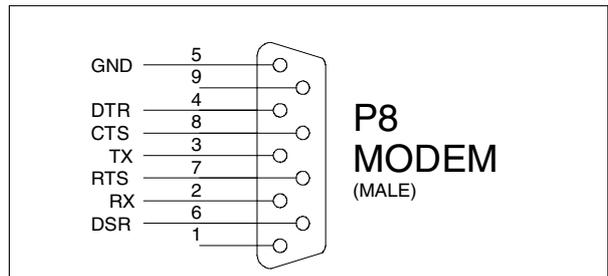
**Transmission Channel Characteristics**

levels: RS 232  
 baud rate: 9600  
 character length: 8 bits  
 parity: none  
 stop bit: 1 bit  
 protocol: The type of protocol to be used is compatible with the transfer software protocol.

During the acquisition phase, the MoniTorr replies to each query made by the Host PC with the following message:

0x16 0xEA 0xFF

**P8 RS 232 - Data Exchange Descriptions**



RS232 Serial Connector for the Modem

**Transmission Channel Characteristics**

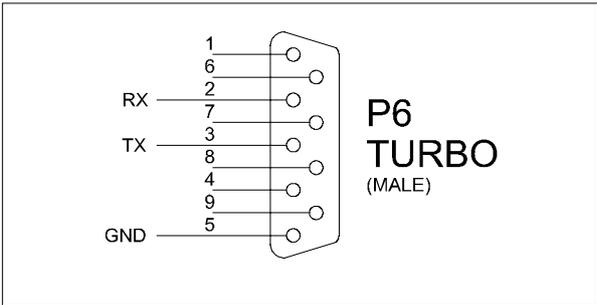
levels: RS 232  
 baud rate: 9600  
 character length: 8 bits  
 parity: none  
 stop bit: 1 bit  
 protocol: The type of protocol to be used is compatible with the transfer software protocol.

During the acquisition phase, the MoniTorr replies to each query made by the Host PC with the following message:

0x16 0xEA 0xFF

This data exchange channel used for the transfer of data via monitor differs from the serial RS232 (connector P5) for the presence of four new signals that are used for managing the data exchanges with the modem.

**P6 RS 232 - Data Exchange Descriptions**



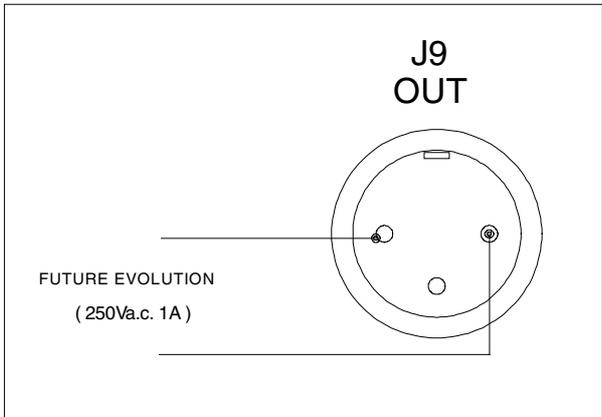
RS 232 Data Exchange Serial Port Connections

**Transmission Channel Characteristics**

- levels: RS 232
- baud rate: 9600
- character length: 8 bits
- parity: none
- stop bit: 1 bit
- protocoll: The type of protocol to be used is automatically selected by the MoniTorr and depends on the controller to which it is connected.

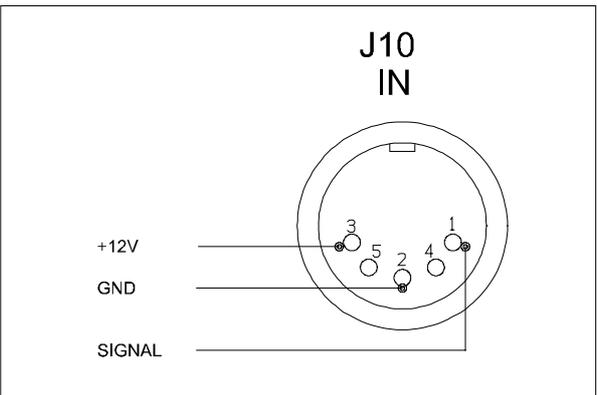
**Connector J9 (Future Evolution)**

Connector J9 is currently not used.



Connector J9 (Future Evolution)

**Connector J10 (Accelerometer)**



Connector J10 (Accelerometer)

Pins 4 and 5 are not used.

**USE**

**General**

Prior to operating the MoniTorr controller, make all vacuum manifold and electrical connections and read this manual.

 **CAUTION!**

Before plugging in the controller power cord, be sure that the selected operating voltage matches the power source to avoid equipment damage.

**Operating Procedure**

Proceed as follows to correctly use the controller:

- Power on the system using the main switch located on the rear panel. The related LED on the front panel will come on.

By means of a specific procedure, the MoniTorr automatically recognizes the type of pump and controller to which it is connected and automatically configures itself accordingly.

- By using the SpeedAdjust signal, the MoniTorr detects when the pump's maximum rotation speed is reached. At this point the acquisition and analysis of the data deriving from the pump begins and is signalled by the flashing of the Data Acquisition LED (yellow).

The data acquisition and processing procedure is automatically repeated at 2-minute intervals.

It is furthermore possible to monitor the turbopump-MoniTorr-controller system by using a local PC or a remote PC connected via modem.

**Transfer Software**

The FILETRAN program acquires the files present in the MoniTorr and stores them on hard disk. This is automatically performed by the program when it is launched, and then at regular intervals depending on the parameters set.

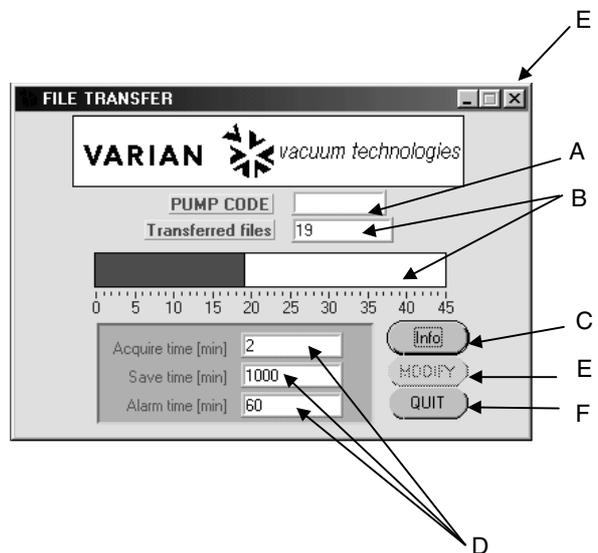
**Functionality**

As soon as it is activated, FILETRAN establishes a connection with the MoniTorr and updates the data that are present on the panel displayed on the personal computer monitor. If during this stage the MoniTorr does not respond, an appropriate dialog box will signal a communication error in which case you have the option to either Retry or Exit.

Once communication is established, the file uploading procedure will begin. The status indicated on the main panel will be updated as each file is transferred.

When all the files are successfully loaded, FILETRAN will automatically reduce to an icon and remain in standby until the next transfer procedure or until operator intervention.

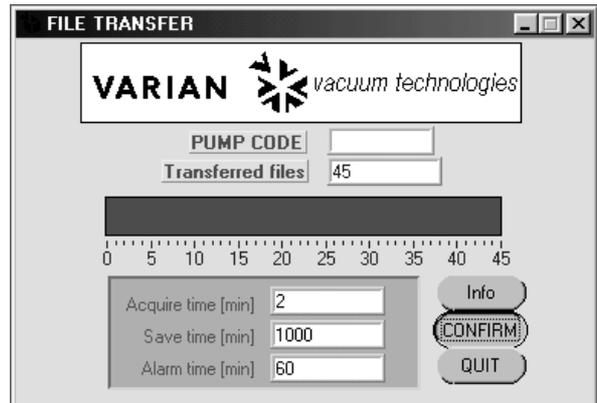
The following figure shows the FILETRAN screen; a brief description of the fields is provided after this screen:



- A: This field indicates the model of the pump; if due to a communication problem the name of the model is not recognized, the word 'Unknown' will be displayed in this field.
- B: These two fields indicate the progress of the file transfer operation in numeric and graphical format: the progress is updated at the end of each file transfer.
- C: Clicking on this button allows you to change the parameters indicated in point D; this button is not active during file transfers.
- D: These fields indicate the configuration parameters and can only be changed by clicking on the MODIFY button and entering a password (provided on request).
- E: Clicking this button allows you to display the information screen, as shown in the following figure.
- F: Clicking on this button exits from the application.

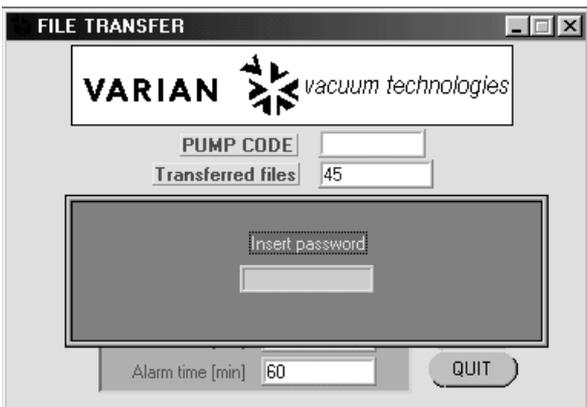


If an incorrect password is entered, the previous screen will be displayed. If the password is correct, the following screen will be displayed:



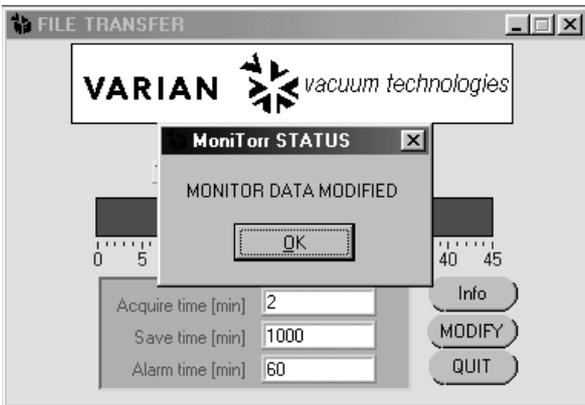
**Modifying the Parameters**

The operator can change the configuration of the parameters **D** (related to the MONITORR) by clicking on the MODIFY button. When pressing the **C** key you will be asked to enter a password in the following screen display:



The password that grants access to the time-related parameter modification environment can be entered with small or capital letters.

It is now possible to modify the parameters and transfer the new values to the MONITORR by clicking on the CONFIRM button. At the end of the operation a dialog box is displayed to inform that the operation ended successfully.



Provided below is a description of the parameters that can be modified:

- Acquire time: Defines the time frame between one MONITORR acquisition and the next. The minimum value for this parameter is 2 minutes.
- Save time: Defines the time frame between two successive storages in the monitor's local memory of the acquisitions indicated above. The default value for this parameter is 1,000 minutes.
- Alarm time: Defines the timeout after which an alarm condition is signaled.

**Storing the Files Transferred**

The files that are present in the MONITORR are transferred to, and stored in, a directory which is automatically created during installation and which resides in the personal computer where FILETRAN is run. The following figure shows the directory path:



Provided below is a brief description of the content of each individual directory.

- Varian:** Name of the directory where the application resides.
- File:** Indicates where the files can be located.
- Model number:** Indicates the pump controller model number (9699434 in the example)
- Serial number:** Indicates the serial number of the controller to which the MONITORR is connected (00000 in the example); this directory hosts the files that will have to be sent via e-mail to VARIAN for the related analysis.
- Send:** Name of the directory which is temporarily used by the program to host the files that are moved during the reading phase.

**Power Failure**

In the event of a power failure (temporary or lasting a long period of time), the controller is switched off. When power is restored, the controller will restart automatically.

**REPLACEMENT**

**General**

Replacement controllers are available on advance exchange basis through Varian service/sales organization.



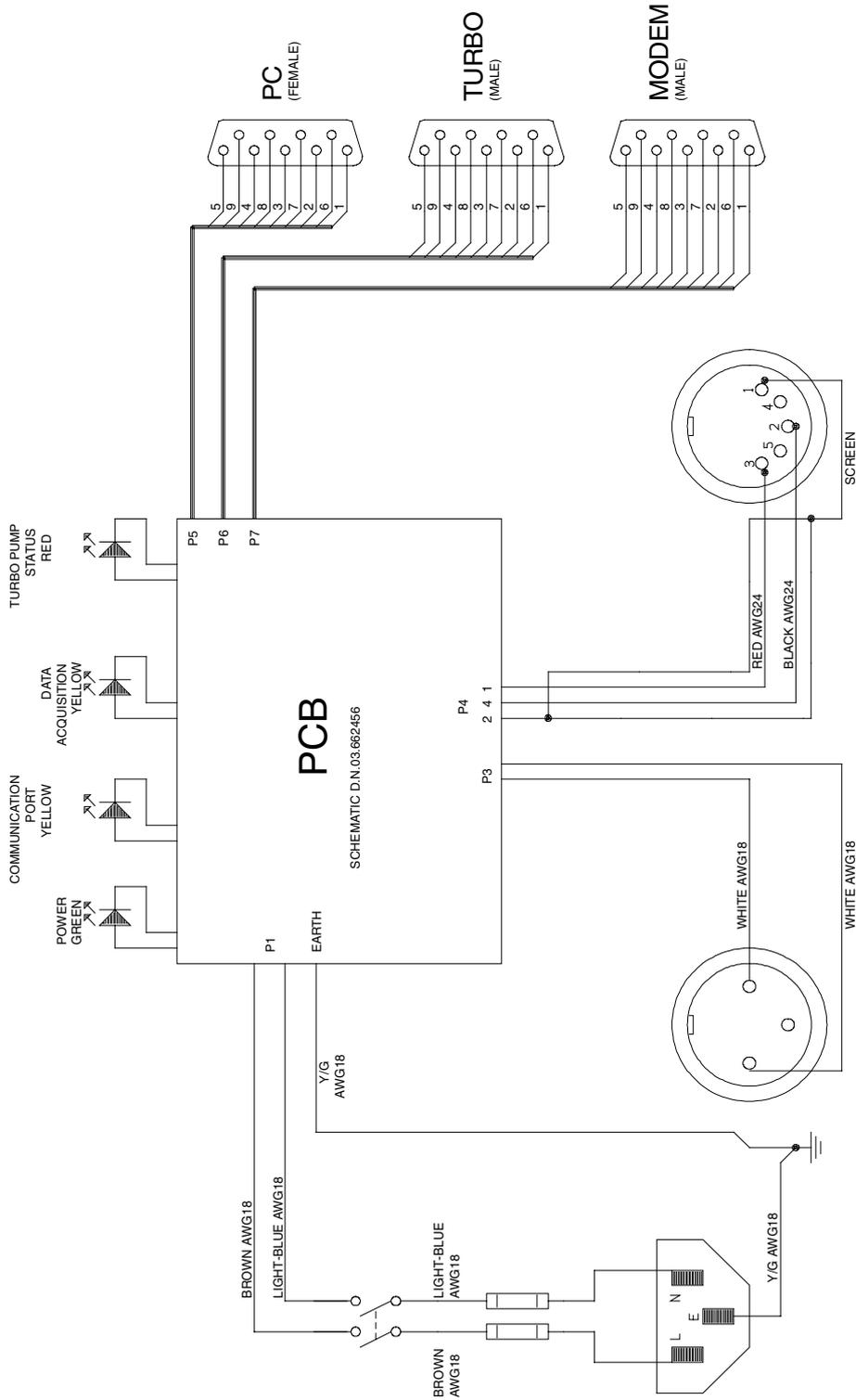
**WARNING!**

High voltage in the controller can cause severe injury or death. Before servicing, turn power off the controller and unplug the power cord.

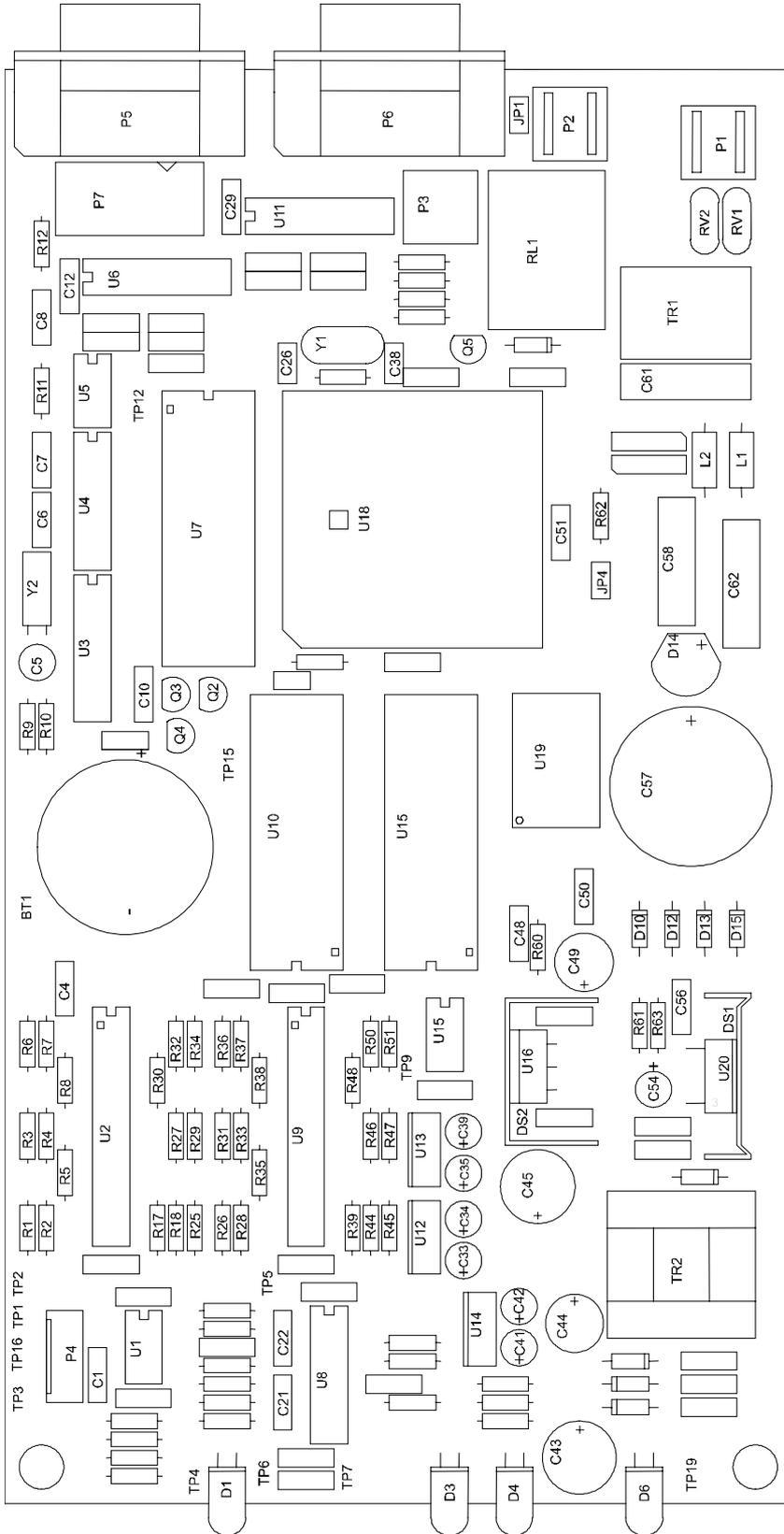
**Troubleshooting**

At power on the controller undergoes an autodiagnosis routine during which all the LEDs come on for a few seconds.

If a failure is detected the LEDs will remain on. In this case contact Varian Technical Support.



<p>IN THE EVENT OF A DISCREPANCY BETWEEN THE DIMENSIONS SHOWN ON THIS DRAWING AND THE DIMENSIONS OF THE PARTS, THE DIMENSIONS OF THE PARTS SHALL PREVAIL. THE DIMENSIONS OF THE PARTS SHALL BE THE DIMENSIONS OF THE PARTS AS SHOWN ON THIS DRAWING. THE DIMENSIONS OF THE PARTS SHALL BE THE DIMENSIONS OF THE PARTS AS SHOWN ON THIS DRAWING.</p>																									
<table border="1"> <tr> <th>DIMENSION</th> <th>&gt;0</th> <th>-&lt;0</th> <th>&gt;0.15</th> <th>-1.000</th> <th>-2000</th> </tr> <tr> <td>ANGLE ±</td> <td>30</td> <td>120</td> <td>315</td> <td>1000</td> <td>2000</td> </tr> </table>	DIMENSION	>0	-<0	>0.15	-1.000	-2000	ANGLE ±	30	120	315	1000	2000	<table border="1"> <tr> <th>REL. TYP.</th> <th>ANGLE ±</th> <th>CONCENTRICITY</th> <th>PERPENDICULARITY</th> <th>PARALLELISM</th> <th>CHAMFER</th> </tr> <tr> <td></td> <td></td> <td>⊙</td> <td>⊥</td> <td>//</td> <td>⌒</td> </tr> </table>	REL. TYP.	ANGLE ±	CONCENTRICITY	PERPENDICULARITY	PARALLELISM	CHAMFER			⊙	⊥	//	⌒
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		⊙	⊥	//	⌒																				
<p>CLASS</p>		<p><b>H</b></p>																							
<p>MONITRR MAINS WIR. DIAGRAM</p>		<p>DATE</p>		<p>23/11/98</p>																					
<p>JOB ORDER</p>		<p>C.M.</p>		<p>SCALE</p>																					
<p>NUMBER</p>		<p>A3</p>		<p>03.662725</p>																					
<p>POSITION</p>		<p>SIZE</p>		<p>DRAWING NO.</p>																					
<p>DRAWN</p>		<p>CHECKED</p>		<p>REVISION</p>																					
<p>DATE</p>		<p>REVISION</p>		<p>REVISION</p>																					



<p>THE DOCUMENT CONTAINS PROPRIETARY INFORMATION OF WARREN ASSOCIATES EXCEPT AS AUTHORIZED BY WRITING SEPARATE WRITING, THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED AND IS NOT TO BE RELEASED TO MEDIA UNLESS REQUESTED BY MEDIA. CONTACT WARREN ASSOCIATES FOR MORE INFORMATION.</p>		<p>CLASS</p> <p><b>H</b></p>	
<p>TOLENCES (unless otherwise specified)</p>		<p>ANGLE =</p>	
<p>DIMENSION</p>	<p>&lt;30</p>	<p>30-120</p>	<p>&gt;120</p>
<p>MACHINING</p>	<p>+0.2</p>	<p>+0.3</p>	<p>+0.8</p>
<p>WELD CONSTR.</p>	<p>+0.3</p>	<p>+1</p>	<p>+2</p>
<p>OTHER</p>	<p>+</p>	<p>-</p>	<p>+</p>
<p>CONCENTRICITY</p>		<p>PERPENDICULARITY</p>	
<p>PARALLELISM</p>		<p>CHAMFER</p>	
<p>MONITRR 300/1000 PCB ASSY</p>			
<p>NUMBER</p>	<p>POSITION</p>	<p>DATE</p>	<p>SCALE</p>
<p>DRAWN</p>	<p>CHECKED</p>	<p>29/04/98</p>	<p>1:1</p>
<p>DATE</p>	<p>REVISION</p>	<p>A3</p>	<p>03.662454</p>
<p>REVISION</p>	<p>SIZE</p>	<p>A3</p>	<p>DRAWING INC.</p>



## Request for Return



1. A Return Authorization Number (RA#) **WILL NOT** be issued until this Request for Return is completely filled out, signed and returned to Varian Customer Service.
2. Return shipments shall be made in compliance with local and international **Shipping Regulations** (IATA, DOT, UN).
3. The customer is expected to take the following actions to ensure the **Safety** of workers at Varian: (a) Drain any oils or other liquids, (b) Purge or flush all gasses, (c) Wipe off any excess residues in or on the equipment, (d) Package the equipment to prevent shipping damage, (for Advance Exchanges please use packing material from replacement unit).
4. Make sure the shipping documents clearly show the RA# and then return the package to the Varian location nearest you.

**North and South America**

Varian Vacuum Technologies  
 121 Hartwell Ave  
 Lexington, MA 02421  
 Phone : +1 781 8617200  
 Fax: +1 781 8609252

**Europe and Middle East**

Varian SpA  
 Via Flli Varian 54  
 10040 Leini (TO) – ITALY  
 Phone: +39 011 9979111  
 Fax: +39 011 9979330

**Asia and ROW**

Varian Vacuum Technologies  
 Local Office

**CUSTOMER INFORMATION**

Company name: .....	
Contact person: Name: .....	Tel: .....
Fax: .....	E-Mail: .....
Ship Method: .....	Shipping Collect #: ..... P.O.#: .....
<i>Europe only:</i> VAT reg. Number: .....	<i>USA only:</i> <input type="checkbox"/> Taxable <input type="checkbox"/> Non-taxable
Customer Ship To: .....	Customer Bill To: .....
.....	.....
.....	.....

**PRODUCT IDENTIFICATION**

Product Description	Varian P/N	Varian S/N	Purchase Reference

**TYPE OF RETURN** (check appropriate box)

<input type="checkbox"/> Paid Exchange	<input type="checkbox"/> Paid Repair	<input type="checkbox"/> Warranty Exchange	<input type="checkbox"/> Warranty Repair	<input type="checkbox"/> Loaner Return
<input type="checkbox"/> Credit	<input type="checkbox"/> Shipping Error	<input type="checkbox"/> Evaluation Return	<input type="checkbox"/> Calibration	<input type="checkbox"/> Other .....

**HEALTH and SAFETY CERTIFICATION**

Varian Vacuum Technologies **CAN NOT ACCEPT** any equipment which contains **BIOLOGICAL HAZARDS** or **RADIOACTIVITY**. Call Varian Customer Service to discuss alternatives if this requirement presents a problem.

The equipment listed above (check one):

**HAS NOT** been exposed to any toxic or hazardous materials

OR

**HAS** been exposed to any toxic or hazardous materials. In case of this selection, check boxes for any materials that equipment was exposed to, check all categories that apply:

- Toxic    Corrosive    Reactive    Flammable    Explosive    Biological    Radioactive

List all toxic or hazardous materials. Include product name, chemical name and chemical symbol or formula.

.....

Print Name: ..... Customer Authorized Signature: .....

Print Title: ..... Date: ...../...../.....

**NOTE:** If a product is received at Varian which is contaminated with a toxic or hazardous material that was not disclosed, **the customer will be held responsible** for all costs incurred to ensure the safe handling of the product, and **is liable** for any harm or injury to Varian employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.

Do not write below this line

Notification (RA)#: ..... Customer ID#: ..... Equipment #: .....

**FAILURE REPORT**

**TURBO PUMPS and TURBOCONTROLLERS**

<input type="checkbox"/> Does not start <input type="checkbox"/> Does not spin freely <input type="checkbox"/> Does not reach full speed <input type="checkbox"/> Mechanical Contact <input type="checkbox"/> Cooling defective	<input type="checkbox"/> Noise <input type="checkbox"/> Vibrations <input type="checkbox"/> Leak <input type="checkbox"/> Overtemperature	<b>POSITION</b> <input type="checkbox"/> Vertical <input type="checkbox"/> Horizontal <input type="checkbox"/> Upside-down <input type="checkbox"/> Other: .....	<b>PARAMETERS</b> Power:                      Rotational Speed: Current:                     Inlet Pressure: Temp 1:                      Foreline Pressure: Temp 2:                      Purge flow: <hr/> OPERATION TIME:
<b>TURBOCONTROLLER ERROR MESSAGE:</b>			

**ION PUMPS/CONTROLLERS**

<input type="checkbox"/> Bad feedthrough <input type="checkbox"/> Vacuum leak <input type="checkbox"/> Error code on display	<input type="checkbox"/> Poor vacuum <input type="checkbox"/> High voltage problem <input type="checkbox"/> Other
Customer application:	

**VALVES/COMPONENTS**

<input type="checkbox"/> Main seal leak <input type="checkbox"/> Solenoid failure <input type="checkbox"/> Damaged sealing area	<input type="checkbox"/> Bellows leak <input type="checkbox"/> Damaged flange <input type="checkbox"/> Other
Customer application:	

**LEAK DETECTORS**

<input type="checkbox"/> Cannot calibrate <input type="checkbox"/> Vacuum system unstable <input type="checkbox"/> Failed to start	<input type="checkbox"/> No zero/high background <input type="checkbox"/> Cannot reach test mode <input type="checkbox"/> Other
Customer application:	

**INSTRUMENTS**

<input type="checkbox"/> Gauge tube not working <input type="checkbox"/> Communication failure <input type="checkbox"/> Error code on display	<input type="checkbox"/> Display problem <input type="checkbox"/> Degas not working <input type="checkbox"/> Other
Customer application:	

**PRIMARY PUMPS**

<input type="checkbox"/> Pump doesn't start <input type="checkbox"/> Doesn't reach vacuum <input type="checkbox"/> Pump seized	<input type="checkbox"/> Noisy pump (describe) <input type="checkbox"/> Over temperature <input type="checkbox"/> Other
Customer application:	

**DIFFUSION PUMPS**

<input type="checkbox"/> Heater failure <input type="checkbox"/> Doesn't reach vacuum <input type="checkbox"/> Vacuum leak	<input type="checkbox"/> Electrical problem <input type="checkbox"/> Cooling coil damage <input type="checkbox"/> Other
Customer application:	

**FAILURE DESCRIPTION**

(Please describe in detail the nature of the malfunction to assist us in performing failure analysis):

**NOTA:** Su richiesta questo documento è disponibile anche in Tedesco, Italiano e Francese.  
**REMARQUE :** Sur demande ce document est également disponible en allemand, italien et français.  
**HINWEIS:** Auf Anfrage ist diese Unterlage auch auf Deutsch, Italienisch und Französisch erhältlich.

## Sales and Service Offices

### **Argentina** **Varian Argentina Ltd.**

Sucursal Argentina  
Av. Ricardo Balbin 2316  
1428 Buenos Aires  
Argentina  
Tel: (54) 1 783 5306  
Fax: (54) 1 786 5172

### **Australia** **Varian Australia Pty Ltd.**

679-701 Springvale Road  
Mulgrave, Victoria ZZ 3170  
Australia  
Tel: (61) 395607133  
Fax: (61) 395607950

### **Benelux** **Varian Vacuum Technologies**

Rijksstraatweg 269 H,  
3956 CP Leersum  
The Netherlands  
Tel: (31) 343 469910  
Fax: (31) 343 469961

### **Brazil** **Varian Industria e Comercio Ltda.**

Avenida Dr. Cardoso de Mello 1644  
Vila Olimpia  
Sao Paulo 04548 005  
Brazil  
Tel: (55) 11 3845 0444  
Fax: (55) 11 3845 9350

### **Canada** **Central coordination through:**

Varian Vacuum Technologies  
121 Hartwell Avenue  
Lexington, MA 02421  
USA  
Tel: (781) 861 7200  
Fax: (781) 860 5437  
Toll Free: (800) 882 7426

### **China** **Varian Technologies - Beijing**

Room 1201, Jinyu Mansion  
No. 129A, Xuanwumen Xidajie  
Xicheng District  
Beijing 1000031 P.R. China  
Tel: (86) 10 6608 1530  
Fax: (86) 10 6608 1534

### **France and Wallonie** **Varian s.a.**

7 avenue des Tropiques  
Z.A. de Courtaboeuf – B.P. 12  
Les Ulis cedex (Orsay) 91941  
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### **Germany and Austria** **Varian Deutschland GmbH**

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Fax: (49) 6151 703 302

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1010 Competent House  
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New Delhi 110 046  
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### **Italy** **Varian Vacuum Technologies**

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Fax: (39) 011 997 9350

### **Japan** **Varian Vacuum Technologies**

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Minato-ku, Tokyo 108  
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966-5 Daechi-dong  
Kangnam-gu, Seoul  
Korea 135-280  
Tel: (82) 2 3452 2452  
Fax: (82) 2 3452 2451

### **Mexico** **Varian S.A.**

Concepcion Beistegui No 109  
Col Del Valle  
C.P. 03100  
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Tel: (52) 5 523 9465  
Fax: (52) 5 523 9472

### **Taiwan** **Varian Technologies Asia Ltd.**

18F-13 No.79, Hsin Tai Wu Road  
Sec. 1, Hsi Chih  
Taipei Hsien  
Taiwan, R.O.C.  
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Fax: (886) 2 2698 9678

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Walton-On-Thames  
Surrey KT 12 2QF  
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Tel: (44) 1932 89 8000  
Fax: (44) 1932 22 8769

### **United States** **Varian Vacuum Technologies**

121 Hartwell Avenue  
Lexington, MA 02421  
USA  
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Toll Free: (800) 882 7426

### **Other Countries** **Varian Vacuum Technologies**

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10040 Leini, (Torino)  
Italy  
Tel: (39) 011 997 9111  
Fax: (39) 011 997 9350

### **Internet Users:**

**Customer Service & Technical Support:**  
[vtt.customer.service@varianinc.com](mailto:vtt.customer.service@varianinc.com)

**Worldwide Web Site:**  
[www.varianinc.com/vacuum](http://www.varianinc.com/vacuum)

**Order On-line:**  
[www.evarian.com](http://www.evarian.com)

Representatives in most countries



# VARIAN