SUMMARY:

GENERAL DESCRIPTION .................................................................3
CONTROL PANEL LEGENDA ..............................................................4
PRELIMINARY SETTINGS .................................................................6
COMMANDS ..................................................................................7
SYSTEM MESSAGES .........................................................................8
GENERAL DESCRIPTION

The Windows AMAT-485 program, enables to control the ICE and HT Turbo molecular pump controller using APPLIED MATERIAL protocol defined in the P4 document - 18 June 1998 revision (no.0190-21857).

The software has been developed to communicate with different controllers simultaneously [Max 31] using RS485 serial interface. All the following description commands refer to this document.
CONTROL PANEL LEGEND:

1) **General** Shut-Down command
2) **Device** address
3) **Initialisation** command
4) **Hello** Slave command
5) **Local** Shut-Down command
6) **User** defined string command
7) **Start** Device
8) **Stop** Device
9) **Parameters** Settings
10) Command Send

11) Speed Setpoint settings

12) Acceleration Time settings [Available on HT controller only]

13) **Speed** Setpoint enable read

14) **Acceleration** Time enable read [Available on HT controller only]

15) **Speed** enable read

16) **Send** setting read parameters

17) **Read** config parameters

18) **Read** specify Parameter

19) **Enable** read Speed Parameter

20) **Enable** Read Acceleration Time Parameter [Available on HT controller only]

21) Enable Speed Setpoint Parameter

22) Speed Parameter value

23) Acceleration Time value [Available on HT controller only]

24) Speed Setpoint value

25) **Rx** Data string

26) **Tx** Data string

27) **Reset** 22,23,24 value command

28) **Last** command repetition enables

29) **Device** Status, command and general condition monitor
PRELIMINARY SETTINGS COMMAND

Before powering on of the controller, check properly the RS485 termination. Remember that:

- RS485 interface needs 120 Ohm Terminator resistor on each line end
- The RS232-RS485 Converter is factory pre-set with 120 Ohm termination Resistor
- The last RS485 line controller needs to enable the termination Resistor with the W5 Jumper

To communicate with the new device, select pull-down menu 'File' and select 'New Device' command. After that, configure the device address [See control panel legenda : point 2]
START UNIT

The Start Unit command (3) initializes the Device and enables the controller to operate via RS485 serial interface. Furthermore erases the read sequential counter.

| Start Unit Command TX                          | 82-ADD-08-07-03-30-30-30-30-32-CRC |
| Controller Answer                             | 82-ADD-03-47-02-CRC                |

N. B.
This button allows the controller to use the RS485 serial interface.

SEND DEVICE COMMAND

The Send Device Command (10) sends commands and parameters to the Device. Before selecting the push button, the user needs to select the command type (7, 8, 9). If the option parameter is chosen (9), at least one parameter needs to be selected (11 and/or 12). COMMAND ACCEPTED message will be visualized if everything is OK, vice versa one of the following messages will appear:

- 'INVALID COMMAND'
- 'INVALID PARAMETER NUMBER'
- 'INVALID PARAMETER VALUE'
**CONFIGURE PARAMETERS**
The (13), (14) [HT only] and (15) select the parameters reading with the GENERAL DATA REQUEST command (17). The selected parameter have to be communicated to the controller pushing the CONFIGURE PARAMETERS button (16).

**GENERAL DATA REQUEST**
The (22), (23) [HT only] and (24) will be updated with the configured data [See the CONFIGURE PARAMETERS command (16)].

**SPECIFIC DATA REQUEST**
The (22), (23) [HT only] and (24) will be updated with the configured data selected with (19), (20) [HT only] and (21) button.

**HELLO SLAVE**
The Hello Slave command (4) displays the controller status [Ex: PUMP-OFF] accordingly to the AMAT Protocol Documentation (no.0190-21857) Rev. P4 page. 15/15. The Command and Protocol errors are shown in the 'Condition' window accordingly to the document as above.

**SHUT_DOWN UNIT**
To erase errors or to stop the device, send the ShutDown command (5). The ShutDown command operates on the selected device only.
## SYSTEM MESSAGES

The following table lists all the controller messages. Please, notice that some of these are not described in the AMAT Protocol Documentation (no.0190-21857) Rev. P4 page. 15/15.

<table>
<thead>
<tr>
<th>CODE</th>
<th>MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>&quot;PUMP-OFF&quot;</td>
</tr>
<tr>
<td>01</td>
<td>&quot;PUMP-ON-AT SPEED&quot;</td>
</tr>
<tr>
<td>02</td>
<td>&quot;PUMP-ON-ACCELERATING&quot;</td>
</tr>
<tr>
<td>03</td>
<td>&quot;PUMP-OFF-DECELERATING&quot;</td>
</tr>
<tr>
<td>04</td>
<td>&quot;FAULT-EXCESS CURRENT&quot;</td>
</tr>
<tr>
<td>05</td>
<td>&quot;FAULT-PUMP OVERTEMPERATURE&quot;</td>
</tr>
<tr>
<td>06</td>
<td>&quot;FAULT-SUPPLY VOLTAGE FAIL&quot;</td>
</tr>
<tr>
<td>07</td>
<td>&quot;PUMP-WAIT-INTERLOCK&quot;</td>
</tr>
<tr>
<td>08</td>
<td>&quot;APPROACHING&quot;</td>
</tr>
<tr>
<td>09</td>
<td>&quot;HIGH-LOAD&quot;</td>
</tr>
<tr>
<td>10</td>
<td>&quot;OVERVOLTAGE&quot;</td>
</tr>
<tr>
<td>11</td>
<td>&quot;SHORT-CIRCUIT&quot;</td>
</tr>
<tr>
<td>12</td>
<td>&quot;NO CONNECTION&quot;</td>
</tr>
<tr>
<td>13</td>
<td>&quot;OVERRIDE&quot;</td>
</tr>
<tr>
<td>14</td>
<td>&quot;TERMICO&quot;</td>
</tr>
</tbody>
</table>