DIPSWITCH CONFIGURATION

DIPSWITCH allows activating or deactivating the SCHP detection function, and selecting the driver to use and delays an enable signal for external devices.

- **Position 1**

The enable output (Pin 17-Port 2) will be activated when the driver enable process starts. A delay in the signal activation time could be added by selecting the OFF position in the DIPSWITCH.

The table below shows the delay time for each supported driver.

<table>
<thead>
<tr>
<th>DRIVER</th>
<th>DELAY (Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G320/340</td>
<td>5</td>
</tr>
<tr>
<td>G203</td>
<td>2</td>
</tr>
<tr>
<td>G210/201/Keling</td>
<td>2</td>
</tr>
<tr>
<td>Viper Servo</td>
<td>5</td>
</tr>
</tbody>
</table>

**SWITCH 1 OFF:** Delayed enable output (Pin 17-Port 2).

**SWITCH 1 ON:** Non Delayed enable output (Pin 17-Port 2).

- **Position 2**

Safety Charge Pump “SCHP”. (Pin 17 “Port 2”)

This board takes advantage of Mach ability to send a specific frequency through one of the pins of the parallel port when the program is in control of the system.

**Selecting the SCHP operation mode**

Onboard DIPSWITCH allows activating or deactivating the SCHP detection function.

**SWITCH 2 ON:** Activate the SCHP detection function.

**SWITCH 2 OFF:** Deactivate the SCHP detection function.
Note: When the Safety Charge Pump function is activated, 5V are present in the E-Stop terminal and a valid SCHP signal is present, Port 2 Pin 17 will go high. This high signal can be used to enable other external devices, such as enabling other Breakout Boards, or relays that would enable servos, VFDs, contactors, etc….Variable Speed Control (pin 14 “Port 1” ) and VFD connection.

For Configuring the Charge Pump in Mach X:
Use the dialog Config / Ports and pins / Output Signals. Enable the Charge Pump output and configure it as is shown to Next, press the apply button.

- **Position 3 and 4**
Select the driver you will use according to the table below.

<table>
<thead>
<tr>
<th>OPERATION MODE</th>
<th>COMPATIBLE DRIVER</th>
<th>DIP 3</th>
<th>DIP 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode 1</td>
<td>G320/DG4S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mode 2</td>
<td>G203</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mode 3</td>
<td>G210/201/Keling</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mode 4</td>
<td>Viper</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
This board includes a Microcontroller-based driver monitoring system. It performs enabling and monitoring functions for servo Drivers, and only enabling function for stepper drivers. It is required connect the driver ERR/RES (servo drivers) or EN (stepper driver) terminal to the pin 5 of each RJ45 driver connector.

Here is a brief description of how these functions are performed for each operation mode.

**Operation Mode 1 (G320/DG4S)**
When the system starts, the C62 error/reset pins go to a low state (0V), making sure the driver remains disabled. When SCHP and E-Stop function are checked and validated and there is no fault signal coming from any driver, the system sends a high (5V) to the driver’s error/reset pins for about 5 seconds to enable the drivers. After that the system monitors the driver’s err/res pins. If a fault occurs on any driver (0V in driver ERR/RES pin) or an external fault occurs (E-Stop or SCHP fault), the system stops and sends an e-stop signal (Active low) to the controller. All outputs on the board are disabled and the drivers will be disabled by sending a LOW (0V) to the drivers ERR/RES pin. The system will remain that way until the conditions to restart are present again.

**Operation Mode 2 (G203)**
When the system starts, the C62 enable pins go to a HIGH state (5V). When SCHP and E-Stop function are checked and validated, the system send a LOW (0V) to the driver’s EN pin for about 2 Sec, enabling the drivers. If an external error occurs, the system stops, resets the CNC software and sends a HIGH (5V) to the drivers EN pin. The system will remain that way until the conditions to restart are present again.

**Operation Mode 3 (G210/201)**
When the system starts, the C62 enable pins go to a LOW state (0V). When SCHP and E-Stop function are checked and validated, the system send a HIGH (5V) to the Drivers EN pin for about 2 Sec, enabling the Drivers. If an external error occurs, the system stops, resets the CNC software and sends a LOW (0V) to the drivers EN pin. The system will remain that way until the conditions to restart are present again.

**Operation Mode 4 (Viper, Teco and Delta)**
When the system starts, the C62 enable pins go to a low state (0V). When SCHP and E-Stop function are checked and validated and there is no fault signal coming from any driver, the system sends a high (5V) to the driver Fault output pin, enabling the drivers. After that the system monitors the driver’s Fault Output pin. If an error is generated in any driver (0V in driver Fault Output pin) or an external error occurs, the system stops, resets the CNC software and sends a LOW (0V) to the drivers to ensure they remain disabled.