Introduction

The purpose of this manual is to provide general operating instructions for the PanelView 600 operator station. PanelView 600 operator station utilizes a color Passive Matrix (LCD) display with touch sense screens to interface with the operator for controlling cell activities.

This manual covers PanelView 600 op-stations that are configured for single robot cells only. Only Arc Welding and General Purpose cells are detailed in this manual.

- **General Purpose**: material handling cells.
- **Arc Welding**: arc welding cells.

Operator Station Functions

The touch sense screens provide access to all cell operating functions except for CYCLE START and EMERGENCY STOP. These two operations are initiated with mechanical push buttons located on the front of the op-station. The programming pendant can be locked out of operation from the operator station.

Push Buttons

**CYCLE START**: The green palm button, located on the front of the operator station, initiates a new cycle. On some op-stations there are two Opto cycle start buttons on the side of unit. Both Opto buttons need to be pressed to initiate a cycle.

**WARNING!**

The operation of the CYCLE START button is dependent on the structure of the Master job. Altering the Master job could result in injury to personnel or damage to the equipment.

If the CYCLE START button is pressed into the AUTO mode while the robot is outside Cube 24, the CYCLE START (IN#1) command is latched into the controller. Once the robot returns to the Home position, the CYCLE START command is executed and for a welding system the positioner sweeps.

**EMERGENCY STOP (E-STOP)**: Pressing an E-STOP button or interrupting a door interlock stops all system operation. Brakes are applied to the robot, and all servo power is removed from the system. The system E-STOP lights come on and all positioner motion is stopped.

The operator station E-STOP and the robot E-STOP are connected in series in the Emergency Stop circuit.

Touch Sense Screens

The first screen, or main menu (see Figure 1), appears immediately upon start-up and should be viewed during production as it gives real-time data on current job and operating status. The other screens, ROBOT, MAINTENANCE, SYSTEM DIAGNOSTICS, GRIPPER, PASSWORDS, are used for setup/start, troubleshooting, and data retrieval. Instant access to the each screen is available using the screen access touch buttons. Differences between the material handling and are welding screens will be clearly stated.

A password-protected TOOLING screen is also provided to coordinate tooling set up and will be customized on a per order basis. The appearance of this screen will change depending on customer use.
Touch pressure from the operator’s fingers activates the screen menu options.

**WARNING!**
Do not touch the op-station screen with sharp objects. Using anything other than fingers to actuate the touch sense buttons can damage the interface screen.

*Main Screen – Arc Welding*

*Figure 1  Main Screen – Arc Welding*

*Main Screen – General Purpose*

*Figure 2  Main Screen – General Purpose*
**Positioner Mode (Arc Welding):** The Positioner Mode touch button selects AUTOMATIC or MANUAL mode for the positioner. The simulated toggle switch changes between AUTO and MANUAL on-screen to indicate the selected mode.

This command is connected to robot Input #37.

- **AUTO** (in automatic) - The robot will process the part after the positioner sweeps.
- **MANUAL** - The robot does not process the part after the positioner sweeps, but remains in the Home position.

**Cycle Start Status Indicator (Arc Welding):** This read-only indicator on the screen displays the current status of the cycle start function. The indicator displays alternately CYCLE START LATCHED and CYCLE START LATCH OFF.

The CYCLE START LATCHED indicator shows when the positioner CYCLE START command has been latched. It is not necessary to wait for the robot to finish welding and return to the Home position (Cube 24) before pressing the CYCLE START palm button. Pressing the CYCLE START palm button while the robot is still in motion locks the CYCLE START command into the controller. The CYCLE START LATCHED light comes on, indicating that the CYCLE START is latched. The positioner sweeps once the robot has finished the current job and returns to the Home position (Cube 24). Pressing the CYCLE START LATCHED box or violating the light curtains will unlatch the CYCLE START command from the controller.

**NOTE:** The CYCLE START will only latch in the AUTO mode.

**Cycle Select (General Purpose):** The Cycle Select touch button selects between CONTINUOUS and SINGLE cycle job mode. The simulated toggle switch changes between CONT and SINGLE on-screen to indicate the selected cycle mode.

- **CONT** (Continuous) - The job selected will run continuously until interrupted by operator or alarm/error.
- **SINGLE** - The job selected will run once and then stop. If this switch is changed from **CONT** to **SINGLE** while a job is in progress, the job will be completed.

**Part Count:** The numeric value displayed in the part count TOTAL indicator represents the number of parts processed. Signals received from the controller dictate increases in part count increments. The pulse output command needs to be programmed at the end of the weld job, or handling cycle.

**NOTE:** Use PULSE OT#(55) to increment the part count.

**Robot Location:** This indicator alternately displays **Robot at Home** and **Not at Home** to notify the operator when the robot has reached Home position.

**Job Status:** This indicator alternately displays **Job Operating** and **Job Stopped** to notify the operator when of job status.

**Multiple Screen Access Buttons:** The screen access touch buttons located at the bottom of each screen provide access to all other menus. As the screens change, the touch buttons at the bottom remain the same.
**Robot Screen**

The robot screen (see Figure 3) allows the operator to control critical robot functions with momentary touch switches. The Robot screen is not password protected.

![Robot Screen Diagram]

**Figure 3  Robot Screen**

**REMOTE MODE:** The REMOTE touch button disables the programming pendant to give control of the cell to the operator station. Once pressed, the button changes from black (off) to green (on).

**SERVO POWER:** The SERVO POWER touch button turns servo power ON and OFF. When the controller is in TEACH mode, the servos will only turn on when the servo switch on the programming pendant is depressed. With the controller in PLAY, the safety gate must be shut to turn servos on. Once pressed, the button changes from black (off) to green (on).

**CALL MASTER JOB:** The CALL MASTER JOB touch button will call up the job that has been registered as the master. The cursor will be located on the first line of the job (top). However, the job will not begin execution until the start button is pressed. If the button press was successful, the text will change from CALL MJ to TOP OF JOB. To prevent crashes, CALL MASTER JOB will not work if a robot is in a work cube or the positioner is not at side A or B.

**ROBOT MODE:** The Robot Mode switch selects PLAY or TEACH mode for the robot. The simulated toggle switch changes between PLAY or TEACH on-screen to indicate the selected mode.

*NOTE:* Changing modes from PLAY to TEACH, during playback, will cause the program to cease execution (similar to HOLD); to resume operation, press PLAY and then START.

**ROBOT JOB:** The Robot JOB touch button will begin executing the current job at the line where the cursor is located. Once the Robot START button is pressed, the text inside the status box above changes to RUNNING. The touch button label will instantly change to HOLD. Pressing the robot HOLD button stops the operation of the job until another start signal is sent.

**FAULT RESET:** The FAULT RESET touch button flashes red when a fault has occurred. Access the robot screen and press the FAULT RESET touch button to clear the alarm.
R1 at Home: During operation, the R1 at Home box illuminates when the robot is in Home location. The text inside changes to NOT HOME when the robot moves out of the Home location.

Multiple Screen Access Buttons: The screen access touch buttons located at the bottom of each screen provide access to all other menus. As the screens change, the touch buttons at the bottom remain the same.

System Diagnostics Screen
The system diagnostics screen (see Figure 4) provides real-time data about robot location and critical safety features during cell operation. The light indicators on this screen will turn on and off as the robot and positioner successfully complete a job. Use the light indicators on this screen and the error message line to diagnose problems.

The System Diagnostics screen for General Purpose and Arc Welding applications is the same except for the screen for General Purpose applications, does not have a positioner column.

![System Diagnostics Screen](image)

Figure 4 System Diagnostics Screen – Arc Welding

The SAFETY column lists the critical status of an E-Stop device or safety mechanisms. All these, with the exception of the light curtain, must be on to turn servo power on.

The POSITIONER column (arc welding) indicates which side the operator is loading.

The CUBES column indicates the location of the robot. A light beside the cube name comes on when the robot enters that cube. The light goes out when the robot leaves the cube. Only one light in this column will be on at a time.
**Maintenance Screen**

The maintenance screen (see Figure 5) provides real-time data for part count information and cycle time.

A password is needed to access the maintenance screen, unless password security is disabled. The security level of the password that enters the maintenance screen will dictate what screens can be viewed from that point forward. These security parameters are established during setup.

**Figure 5  Maintenance Screen**

**PART SELECTION:** PART SELECTION provides the operator with a list of production parts to choose from. The jobs to process these production parts are stored in the controller and linked to the part name that is displayed in the selection box.

To select a part, use the UP and DOWN arrow keys to toggle to the preferred part until it is highlighted, and press ENTER. Once that part is selected, the job for that part will run until another part is selected.

The name of the part can be changed from Part 1, Part 2, etc. to any customer specific name up to 16 characters. To change the name of a part, contact Motoman customer service.

Once the part number is selected, a group of controller inputs will turn on representing a binary number of the part selected.

**NOTE:** Use CALL JOB: name IF IG # (8) =12 to run the job that will process part 12 when this job is selected at the op-station.

**PART COUNT:** The PART COUNTER tracks the total number of parts that are processed. Signals received from the controller dictate increases in part count increments. The pulse output command needs to be programmed at the end of the weld job, or handling cycle.

**NOTE:** Use PULSE OT#(55) to increment the counter.
**RESET:** The count reset touch button resets the counter to zero when pressed. The button is functional at any time.

**CYCLE TIME:** The cycle time indicator displays the time taken by the robot to complete the job or specific task.

The timer is controlled by a Cycle Timer Enable output from the controller.

**NOTE:** Use DOUT #56 ON to start the timer.

When the output is turned off, the timer will stop and display the elapsed time. When the output is turned on, the time value will reset to zero, and the timer will start again.

These output commands can be placed anywhere in the jobs to time the weld cycle, the load cycle, or any other sequence.

**Multiple Screen Access Buttons:** The screen access touch buttons located at the bottom of each screen provide access to all other menus. As the screens change, the touch buttons at the bottom remain the same.

**Gripper Screen (General Purpose)**

The gripper touch screen (see Figure 6) allows the operator to troubleshoot, and function the gripper without using the programming pendant. The gripper screen is found on the General Purpose operator station only.

![Gripper Screen](image)
**Mode Select:** The Mode Select touch button selects AUTOMATIC or MANUAL mode for control of the grippers. The simulated toggle switch changes between AUTO and MANUAL on-screen to indicate the selected mode.

**NOTE:** This command is connected to robot Input #37.

- **AUTO** (in automatic) - In Auto mode, the grippers will open and close only when the job calls for it. The OPEN/CLOSE buttons will not function in Auto mode.
- **MANUAL** - In Manual mode, control is given to the operator to open and close the grippers with the buttons.

**OPEN/CLOSE:** The OPEN/CLOSE touch buttons are used to open and close the gripper. The Mode Select switch must be in Manual for these switches to work.

**PART DETECT:** The part detection lamps work with visual detection mechanisms to check for part presence. If the part is detected, the lamp will illuminate. This feature can be configured differently to fit the customers needs.

**Multiple Screen Access Buttons:** The screen access touch buttons located at the bottom of each screen provide access to all other menus. As the screens change, the touch buttons at the bottom remain the same.

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**Passwords Screen**

The Passwords screen (see Figure 7) is used to set up, change, and disable all password functions.

![Password Screen Diagram](image-url)

**Figure 7 Passwords Screen**
**Security Mode – Enabled/Disabled:** This touch button turns on and turns off the security functions of the operator station. The text inside the touch button changes to reflect the current Security Mode.

SECURITY DISABLED allows complete access to the operator station without the use of passwords.

SECURITY ENABLED turns on the passwords for the operator station. A password will be required to access the TOOLING, GRIPPER, MAINTENANCE, and PASSWORD screens.

**Multiple Screen Access Buttons:** The screen access touch buttons located at the bottom of each screen provide access to all other menus. As the screens change, the touch buttons at the bottom remain the same.

**Choose an Operator:** Different operator names are used with passwords to limit access to certain screens. The operator name SUPERVISOR has access to all screens and has the ability to turn off all security functions. The MAINTENANCE operator name can access any screen accept for the password screen, and any screen that requires a password.

   a) **Passwords**

   Motoman provides default passwords (see Table 1) for each of the two operator names.

<table>
<thead>
<tr>
<th>Operator Name</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor</td>
<td>1111</td>
</tr>
<tr>
<td>Maintenance</td>
<td>2222</td>
</tr>
</tbody>
</table>

**NOTE:** The system can register up to 16 operators. Contact Motoman for the software needed to add more operator names.

**Change a Password:** To change a password that is allocated to an operator name, proceed as follows:

1. Press the operator button until the correct name is displayed.
2. Press the NEW PW touch button.
3. Type “new password” into the keypad that appears on screen.
4. Press the large arrow key to enter new password and exit keypad.
5. Press the VERIFY touch button.
6. Retype the new password onto the keypad that appears on screen.
7. Press the large arrow key to finish password change.

**Troubleshooting**

Errors that occur in the system are recognized and diagnosed by the controller and listed above the screen access buttons. These errors appear on the operator station only. Refer to Table 2 (Arc Welding) and Table 3 (General Purpose) for error message identification and action procedures.
## Error Messages – Arc Welding

### Table 2  Error Messages – Arc Welding

<table>
<thead>
<tr>
<th>Error Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock Sensor Tripped</td>
<td>Reset torch alignment</td>
</tr>
<tr>
<td>This button only works in the Remote Mode</td>
<td>Switch Controller to Remote mode and continue</td>
</tr>
<tr>
<td>Light Curtain Interrupted During Sweep</td>
<td>Light curtain interrupted. Get in TEACH mode and complete sweep job before restart</td>
</tr>
<tr>
<td>XRC Alarm - View at pendant</td>
<td>Read pendant and clear</td>
</tr>
<tr>
<td>Switch to PLAY mode for Servo ON</td>
<td>Switch Controller to PLAY for servo on</td>
</tr>
<tr>
<td>Close Safety Gate for Servo ON</td>
<td>Close cell door, press servo on again</td>
</tr>
<tr>
<td>Move Robot out of Work Cubes to Call MJ</td>
<td>Move robot out of work cubes before pressing Call Master Job button</td>
</tr>
<tr>
<td>Teach Locked at Pendant</td>
<td>Pendant has command, turn off pendant teach lock</td>
</tr>
<tr>
<td>Programming Pendant E-STOP</td>
<td>Reset E-STOP</td>
</tr>
<tr>
<td>Playback Box E-STOP</td>
<td>Reset E-STOP</td>
</tr>
<tr>
<td>External E-Stop</td>
<td>Reset E-STOP</td>
</tr>
<tr>
<td>Move Positioner to Side A or B</td>
<td>Move the positioner to side A or B before pressing the Call Master Job button</td>
</tr>
</tbody>
</table>

## Error Messages – General Purpose

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<table>
<thead>
<tr>
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<td>Playback Box E-STOP</td>
<td>Reset E-STOP</td>
</tr>
<tr>
<td>External E-Stop</td>
<td>Reset E-STOP</td>
</tr>
<tr>
<td>Error – ALARM NOT DEFINED IN LOGIC</td>
<td>Restart controller and continue</td>
</tr>
</tbody>
</table>