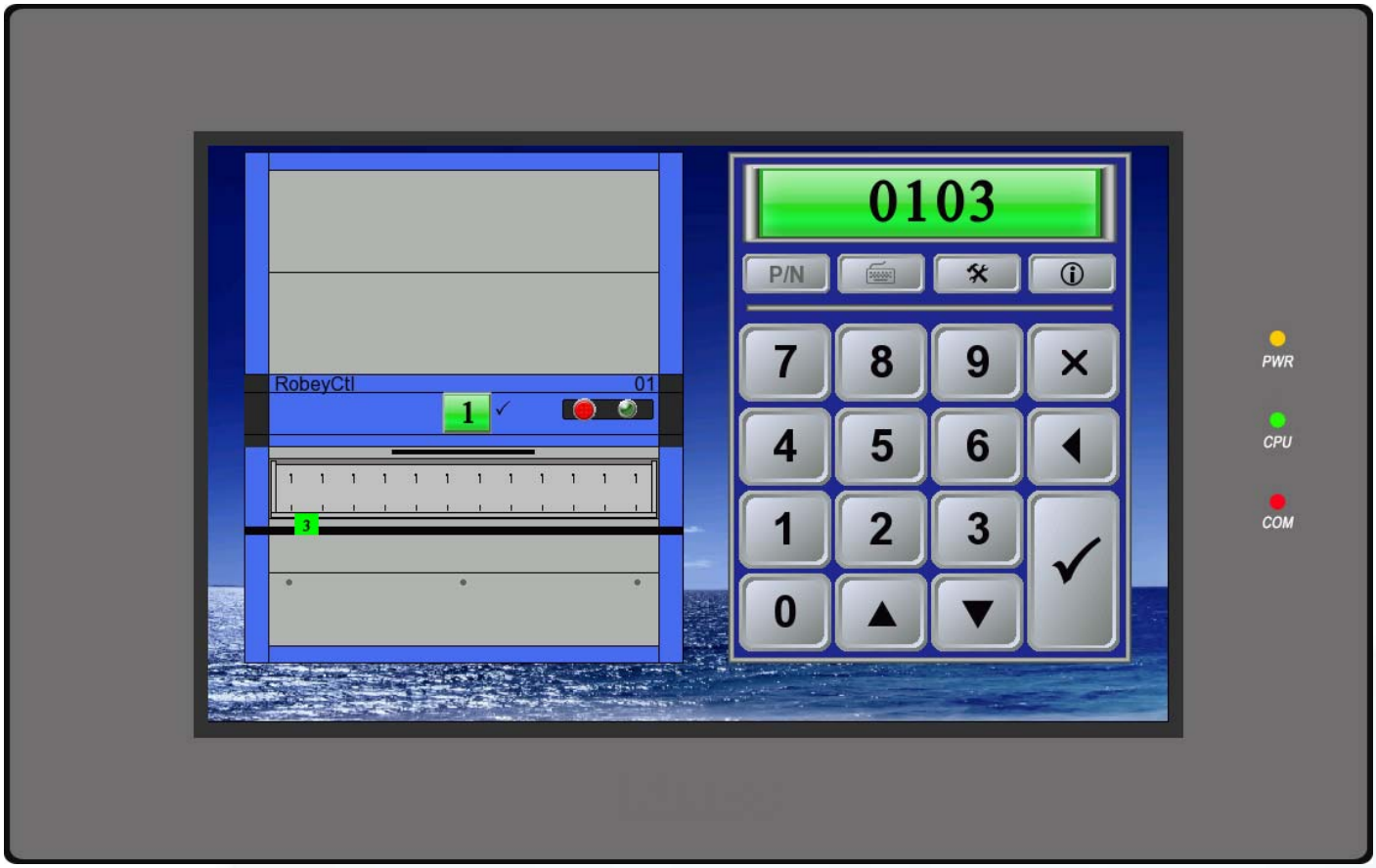
OP7
User Guide



Thank you for choosing our company and product for your facility.
We suggest that you read this entire guide before using your new control system.

If you need help or have questions,
please feel free to contact us at the email address below:

support@RobeyControls.com

or see our website at:

www.RobeyControls.com

This document reflects the OP7 using project:

Version 1.03+

Table of Contents

KEYBOARD OVERVIEW

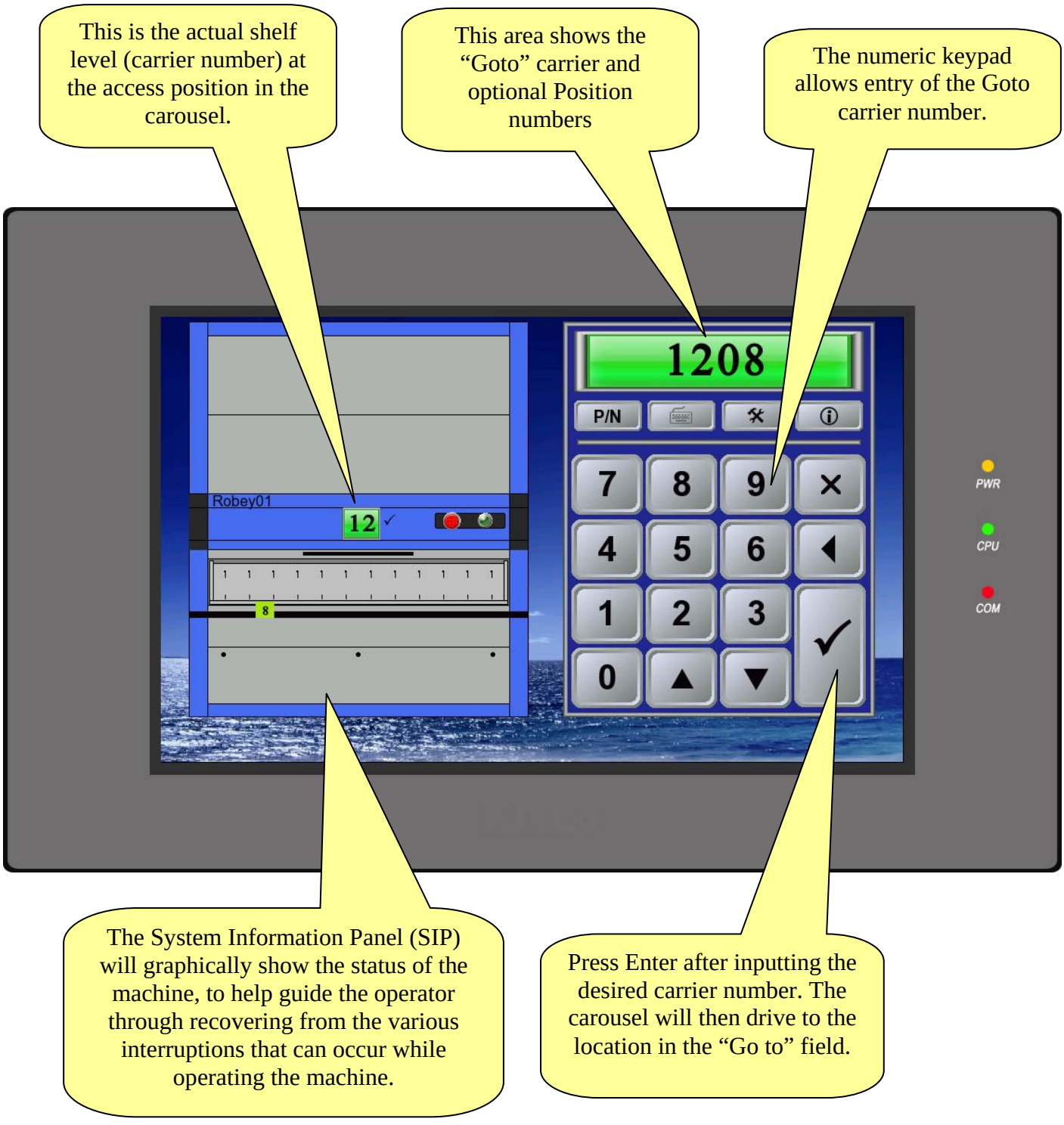
- Operator Panel Specifications

Performance Specification	
Display	7" 16:9 TFT
Resolution	800 x 480 Pixels
Color	65,536 Colors
Backlight	LED
Brightness	300 cd/m²
Backlight Life	50000 Hrs
Touch Panel	4-Wire Precision Resistance Network
Processor	32-bit RISC CPU 800 MHz
Memory	128 MB FLASH, 64 MB SDRAM
Expandable Memory	1 USB Host
Recipe Memory & RTC	512 KB & RTC
Printer Port	USB/Serial Port
Ethernet	10/100 Base-T
Program Download	USB Slave/Serial Port/Ethernet Port
COM Port	COM0: RS232/RS485-2/RS485-4, COM2: RS232
Electrical Specification	
Rated Power	4 W
Rated Voltage	24 VDC
Input Range	12~28 VDC
Power Down Allowed	< 3 ms
Insulation Resistance	> 50M Ω @ 500 VDC
Dielectric Strength Test	500 VAC 1 Minute
Structure Specification	
Shell Color	Black
Shell Material	ABS
Dimensions(mm)	204 x 150 x 37
Cutout Size(mm)	192 x 138
Weight	0.75 Kg
Environment Specification	
Operating Temperature	0°~50° C
Operating Humidity	10~90% Non-Condensing
Storage Temperature	-10°~60° C
Storage Humidity	10~90% Non-Condensing
Shockproof Test	10~25Hz (X,Y, Z Direction, 2G, 30 Minutes)
Cooling Method	Natural Air Cooling
Certification	
Degree of Protection	IP65 (Front Panel)
CE Certification	Comply with EN61000-6-2:2005 and EN61000-6-4:2007 Standards
FCC Compatibility	Complies with FCC Class A

- Touch-sensitive display, selecting a carrier

The OP7 user-interface is an operator panel used for controlling the carousel. It also provides helpful feedback on the machine's operating status.

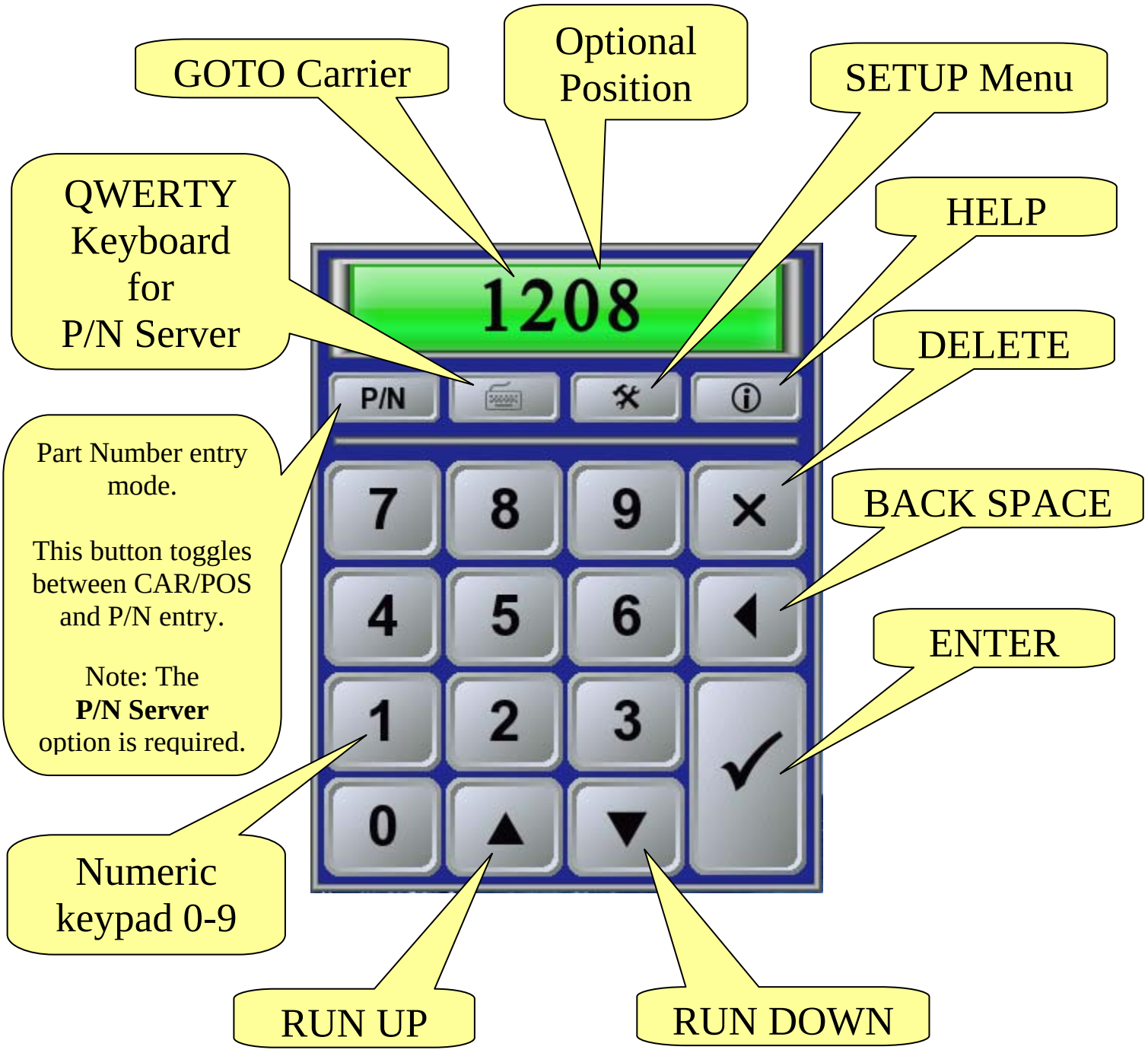
The display it touch-sensitive, and can to touched with your finger or a soft probe. **Never use a sharp object like a screw-driver or a pen to press on the touch-panel – you may destroy it!**



- Keypad (normal buttons)

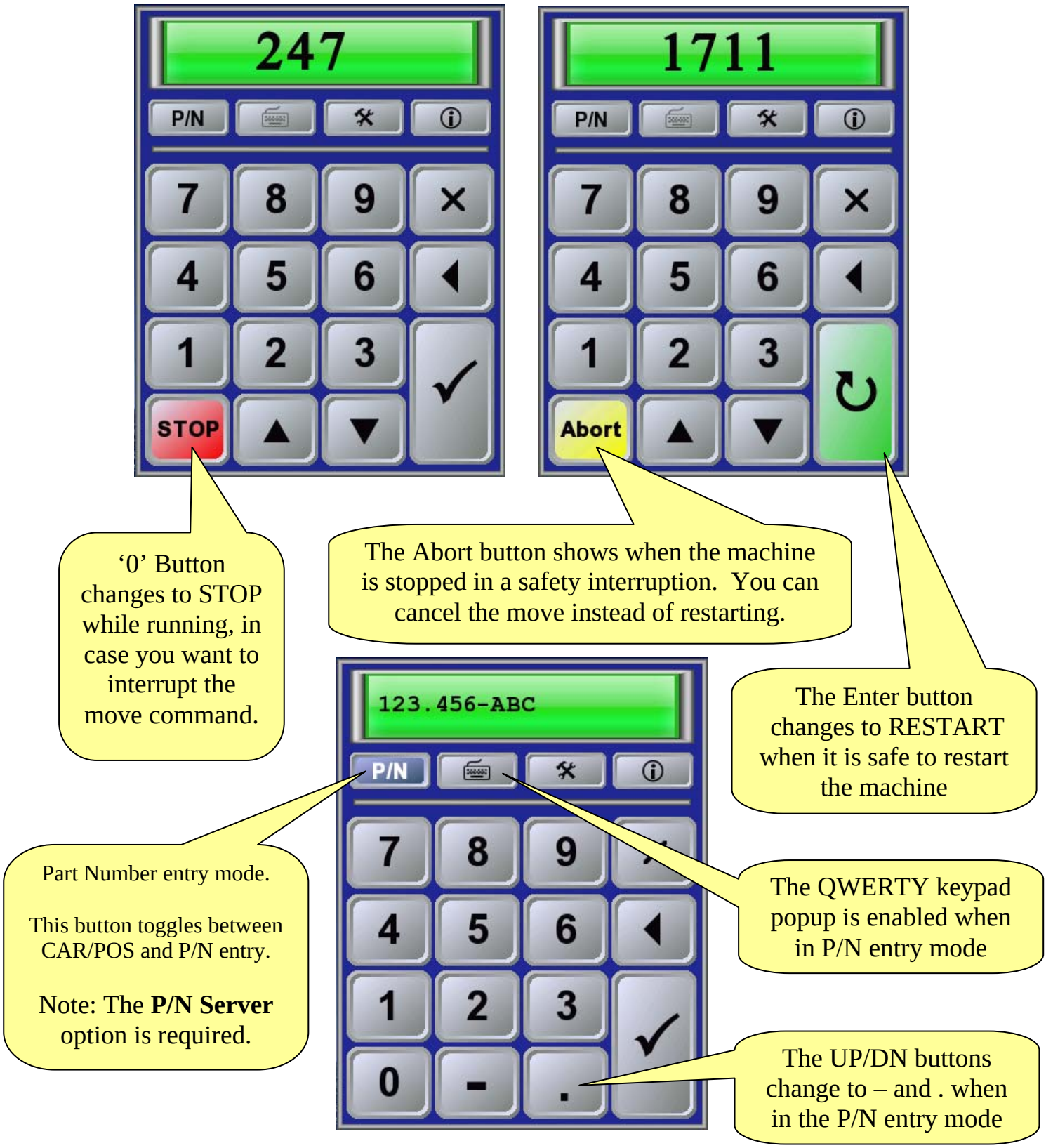
The keypad has a typical numeric keypad layout with keys 0-9 used to select the “Goto” carrier. The Enter key confirms the entry when completed, and the editing keys DELETE and BACK-SPACE can be used to adjust entries.

Two special keys are included, SETTINGS which provides access to a group of machine setup parameters and HELP which provides useful information in English text for error messages and other conditions.

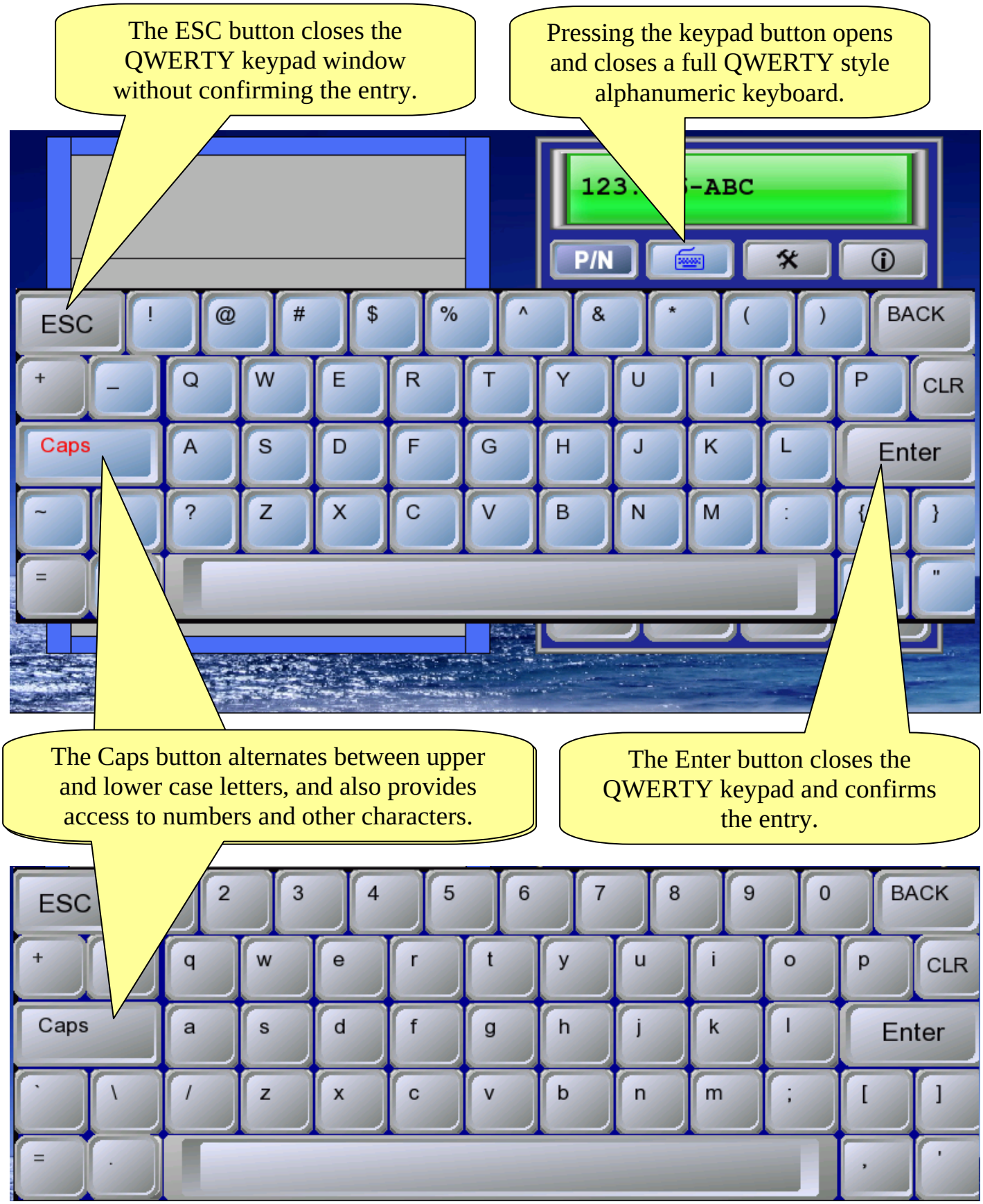


- Keypad (alternate buttons)

The keypad alternates some of the keys on the keypad while moving to a location, as shown below:



- Alphanumeric QWERTY pop-up keypad



- Keypad (Selecting a carrier number / position)

The keypad has two basic operating modes: Carrier entry or Carrier+Position entry. The different modes are configured in the SETUP menu.

- **Carrier Entry:**

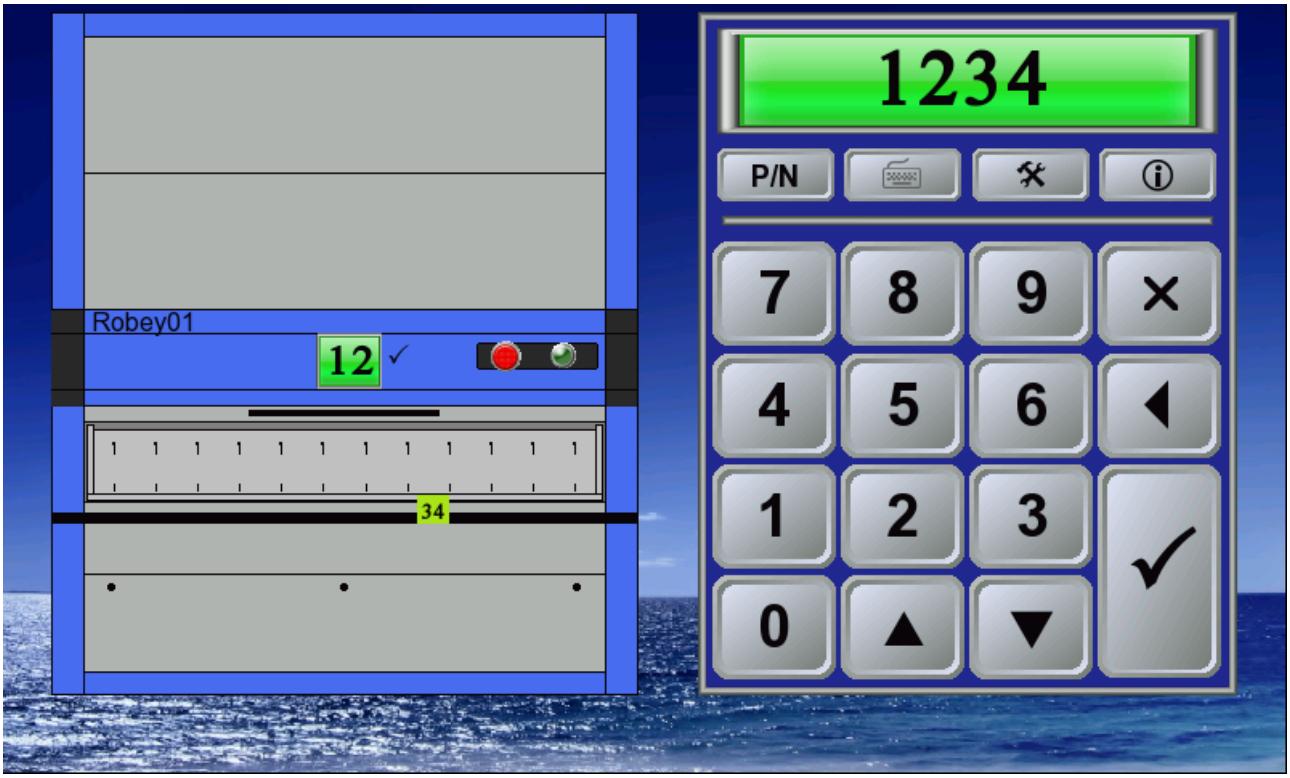
  Using the number keys 0-9, enter a 1- or 2-digit carrier (level).

  1 = Drive to Carrier 1
  23 = Drive to Carrier 23

- **Carrier + Position Entry:**

  Using the number keys 0-9, enter a 1- or 2-digit carrier (level) followed by a 2-digit position.

  1 = Drive to Carrier 1
  12 = Drive to Carrier 12
  123 = Drive to Carrier 1 and show Position 23
  1234 = Drive to Carrier 12 and show Position 34



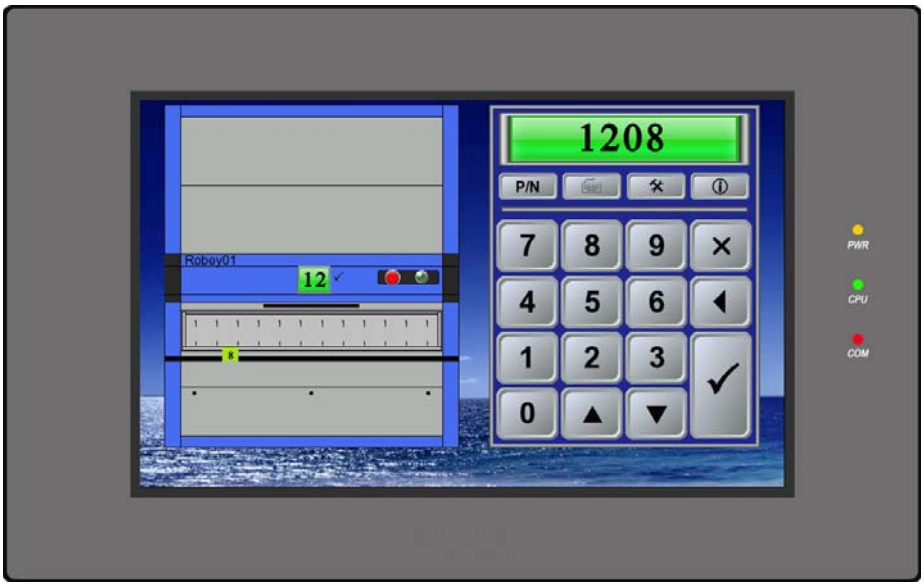
The operating mode selection (Carrier verses Carrier+Position mode) is selected in the SETUP – DISPLAY menu area.

- Keypad (Jogging)

The keypad can be used with the UP and DOWN arrow keys to manually rotate the machine. Pressing UP moves the carousel forward and DOWN reverse. While running in this mode, the display will show the next possible stop position based on the machine's position and rotations speed. Use this to determine when to release the arrow button.

- Keypad (external numeric keypad option)

The OP7 can be used with an external USB style numeric keypad, typically placed beside the main display. This keypad provides traditional buttons with the tactile feedback like traditional computer keypads, and may allow faster entry of the carrier select information verses using the (more fragile) touch-panel. It can be used along-side the primary OP7 touch-panel as an alternate input keypad, in addition to the main touch-panel keypad.



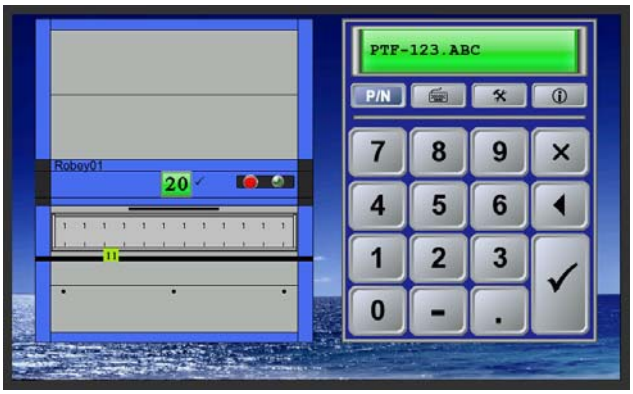
Note: Since this component is a low-cost and off-the-shelf keypad, many of the keys are not supported. The only keys supported include the numeric keypad 0-9 and the Enter key. All others will be ignored by the system, as it is intended to be used for entry of the “Goto” carrier number, or Carrier+Position only.

If the keypad seems to be non-responsive, try pressing the Num-Lock button. The keypad must be in NUMBER input mode.

- Keypad (external alphanumeric keypad option)

The OP7 can be used with an external USB style alphanumeric keypad, typically placed beside the main display. This keypad provides traditional buttons with the tactile feedback like traditional computer keypads, and may allow faster entry of the carrier select information verses using the (more fragile and smaller) touch-panel. It can be used along-side the primary OP7 touch-panel as an alternate input keypad, in addition to the main touch-panel keypad.

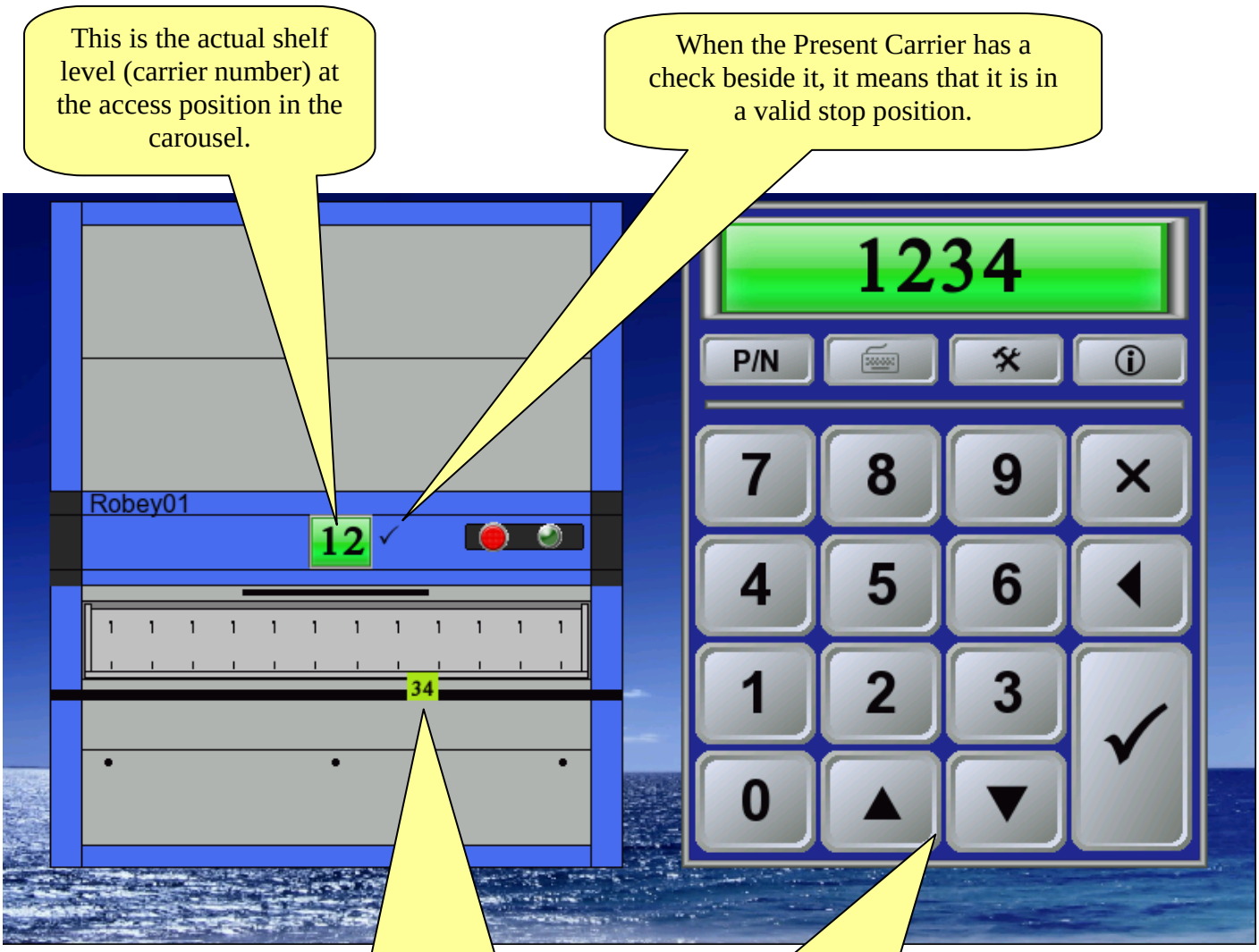
This alphanumeric keypad option is very helpful when using the P/N Server option to enter alphanumeric part numbers.



Note: Since this component is a low-cost and off-the-shelf keypad, many of the keys are not supported.

- Present carrier display, Position display, valid carrier check-mark, UP / DOWN keys

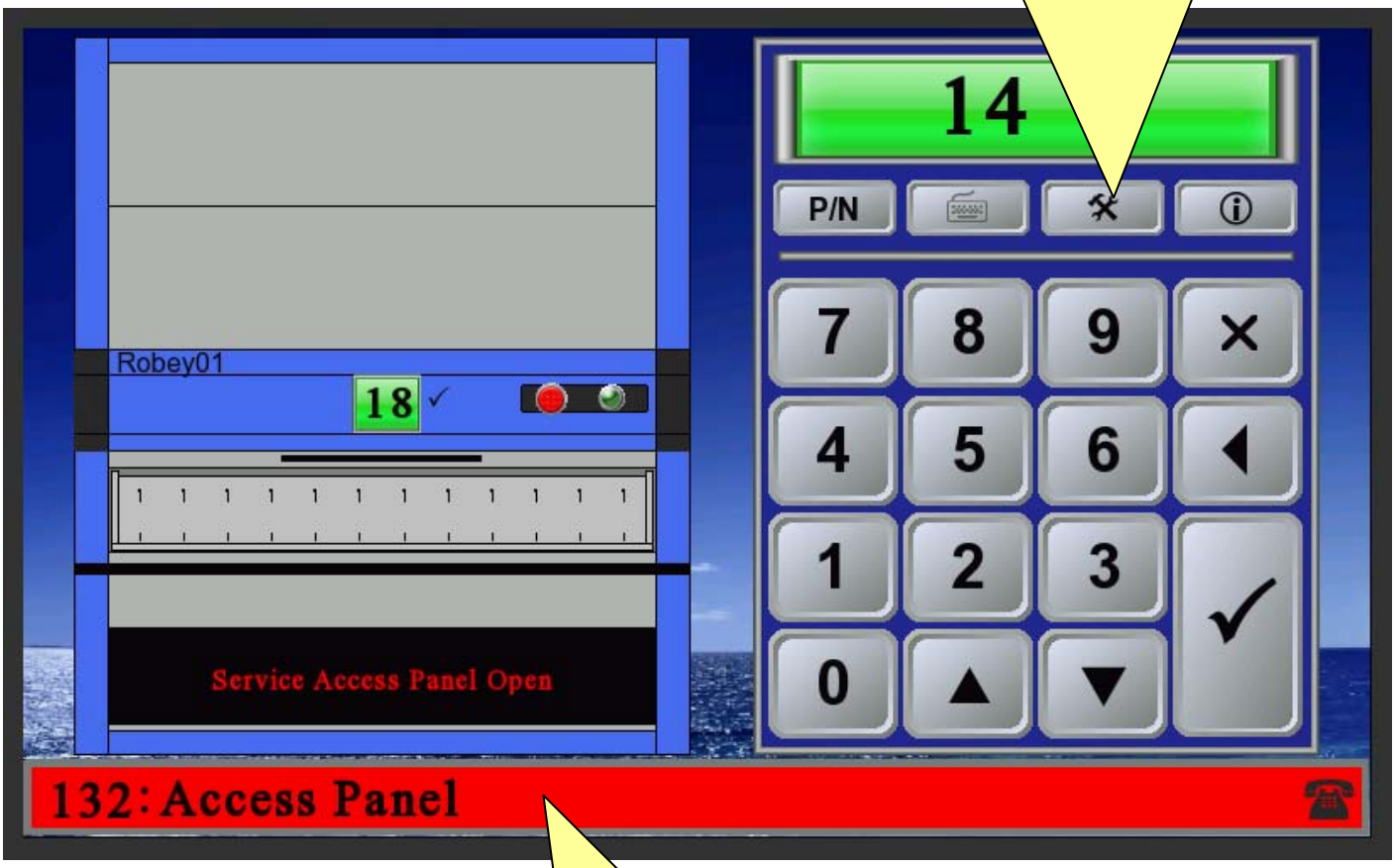
The display reports the operating status of the machine in various ways. The 'Present' carrier level is shown on the left; a check-mark appears to its right when the carrier is in a valid stop position. Error code numbers and text descriptions are shown near the bottom of the screen.



- SETUP access button and Present Error display location (messages with red background)

The display can be setup for Left- or Right-handed operation, i.e. the keypad can be placed on the right or the left side of the screen. Error code numbers and text descriptions are always shown near the bottom of the screen, and accessing the ‘Setup’ menu is accomplished via the ‘Setup’ button.

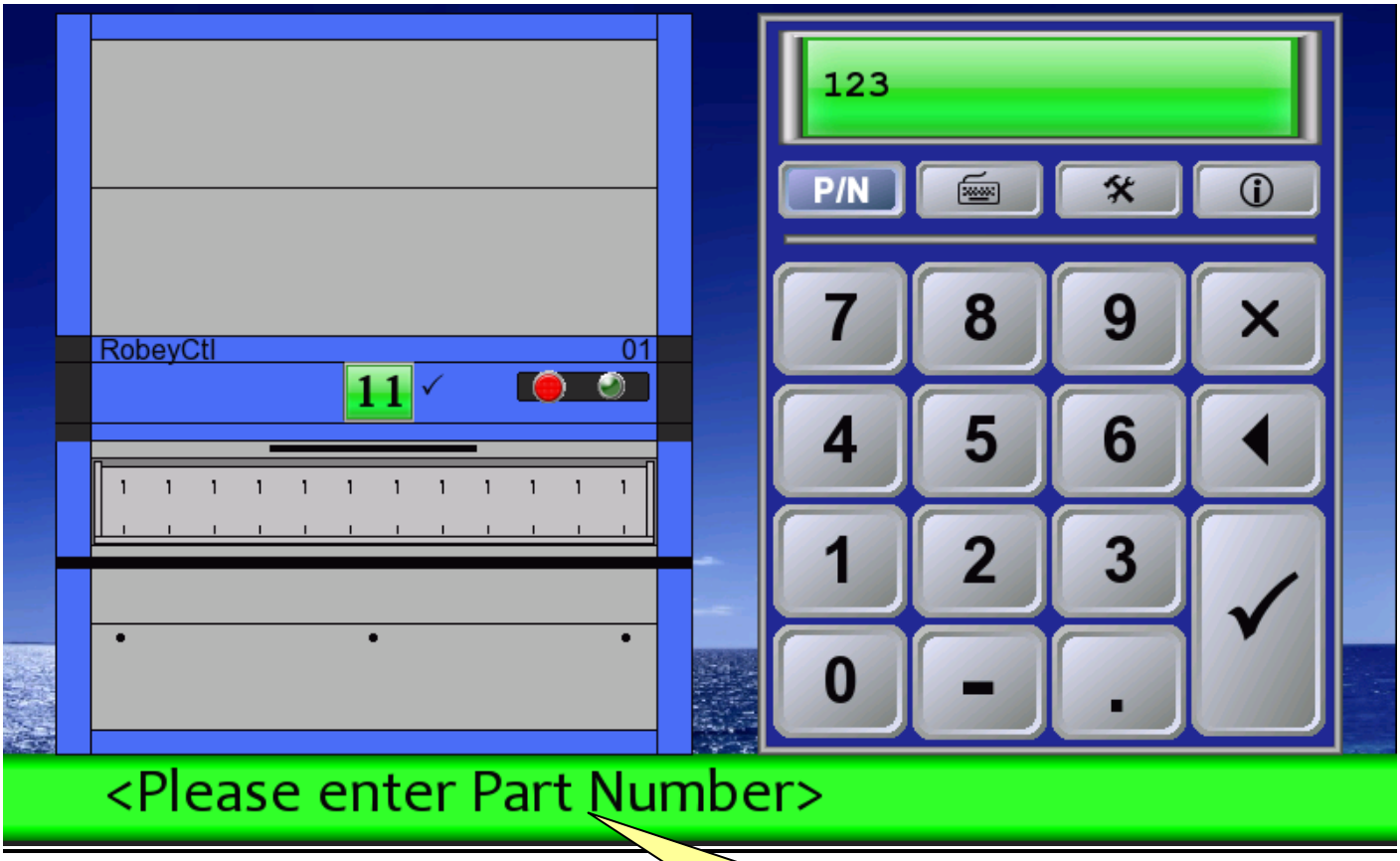
This ‘Setup’ button allows access to the service and system setup menus. Some areas, including the machine sensitive parts, are blocked by a password and intended only for trained technicians.



This area is reserved to show System error information. A table with all the possible errors can be found in the appendix of this manual.

- System prompts (messages with green backgrounds)

The display may occasionally show various message prompts at the bottom, in the same area as the error messages previously defined. These system "prompts" will appear with green backgrounds and contain directions for the operator. The messages are not defined in this manual, as they are continually changing and outside the scope of this document.



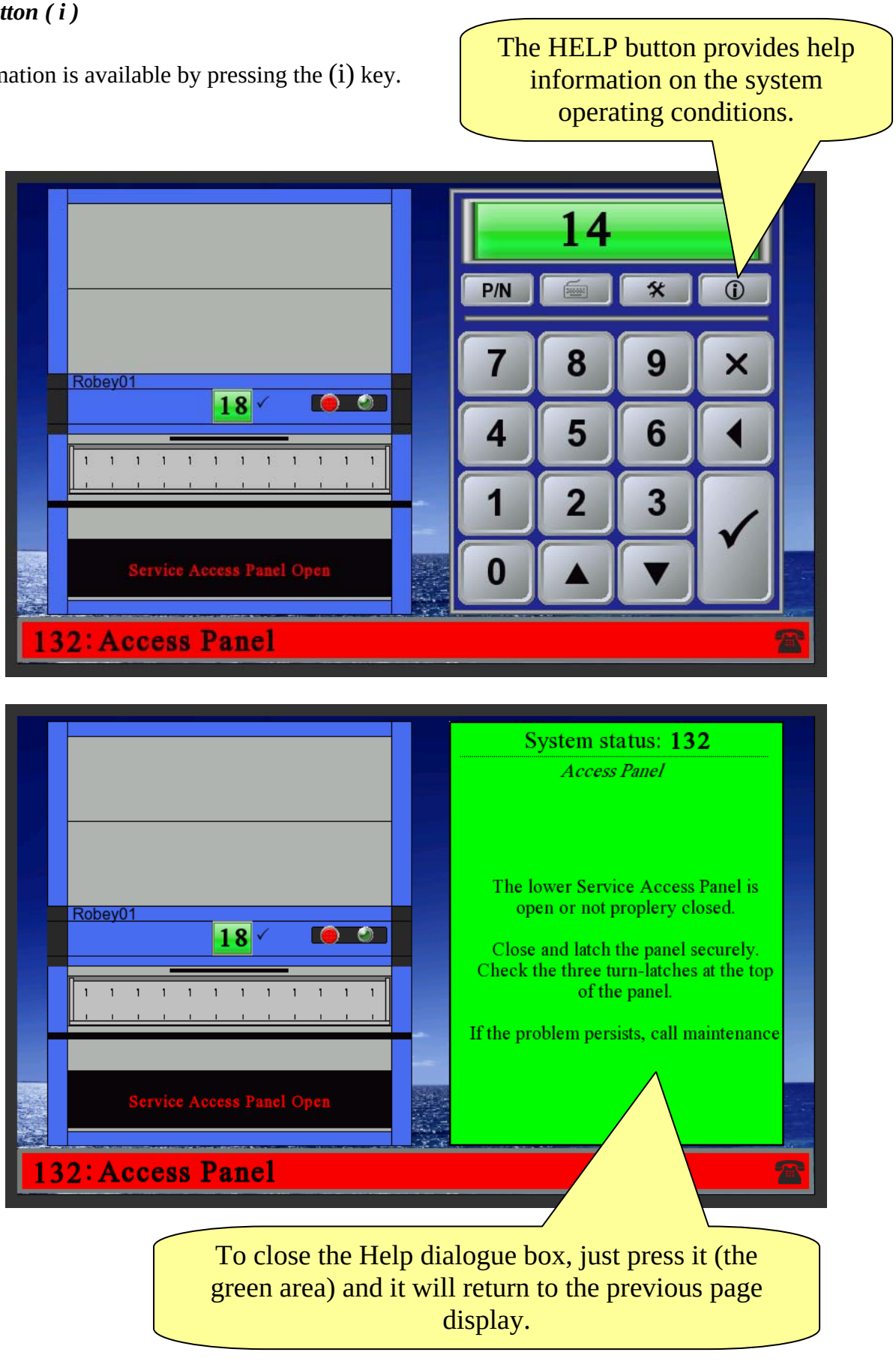
Occasionally, special system prompts may appear to provide guidance for the operator. These prompts are shown with a green background, whereas the error messages are shown in red.

- Dealer contact information

When error messages are showing, the telephone icon is used to show the dealer contact information so you can call for service if necessary.

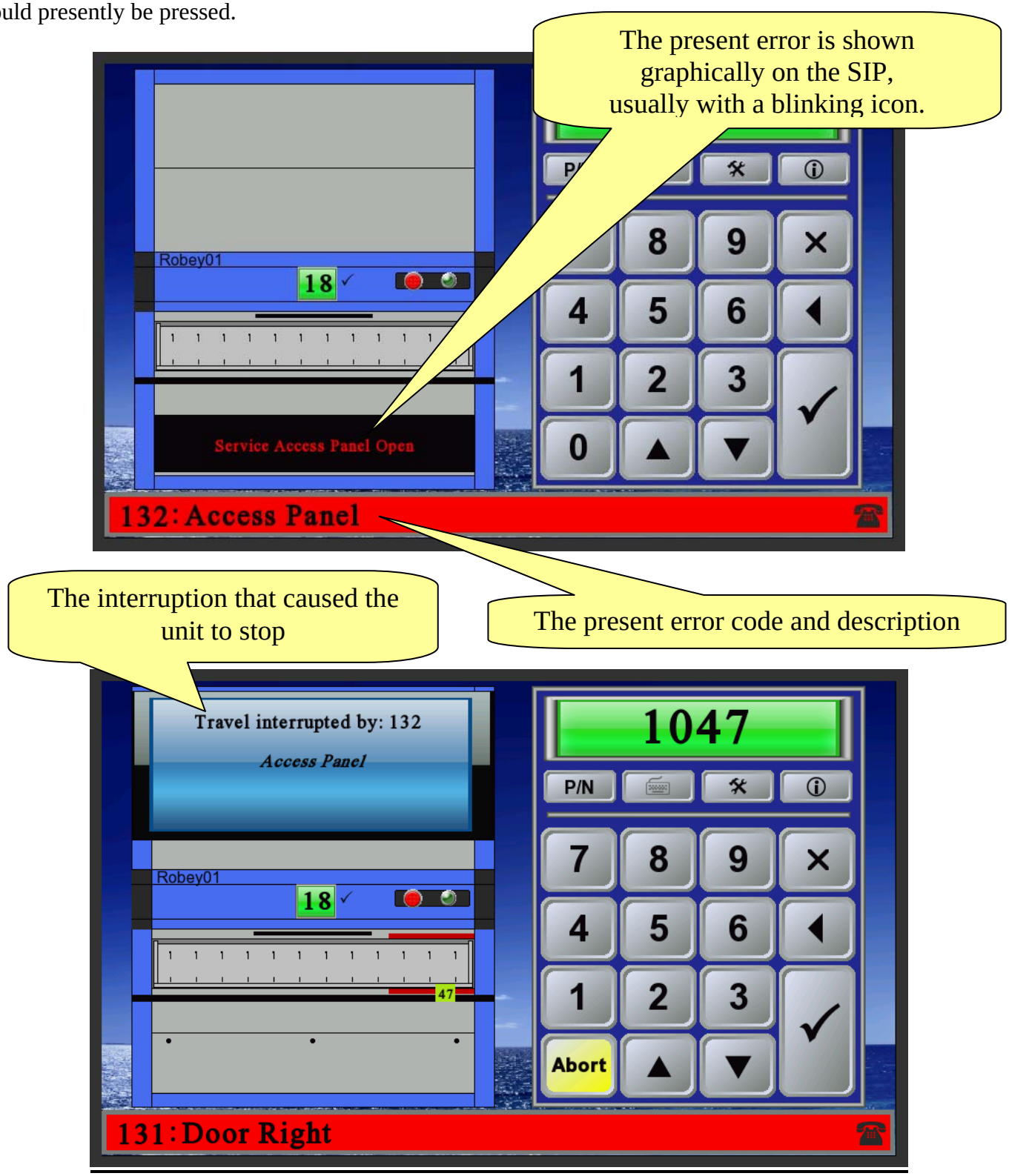
- HELP button (i)

Help information is available by pressing the (i) key.

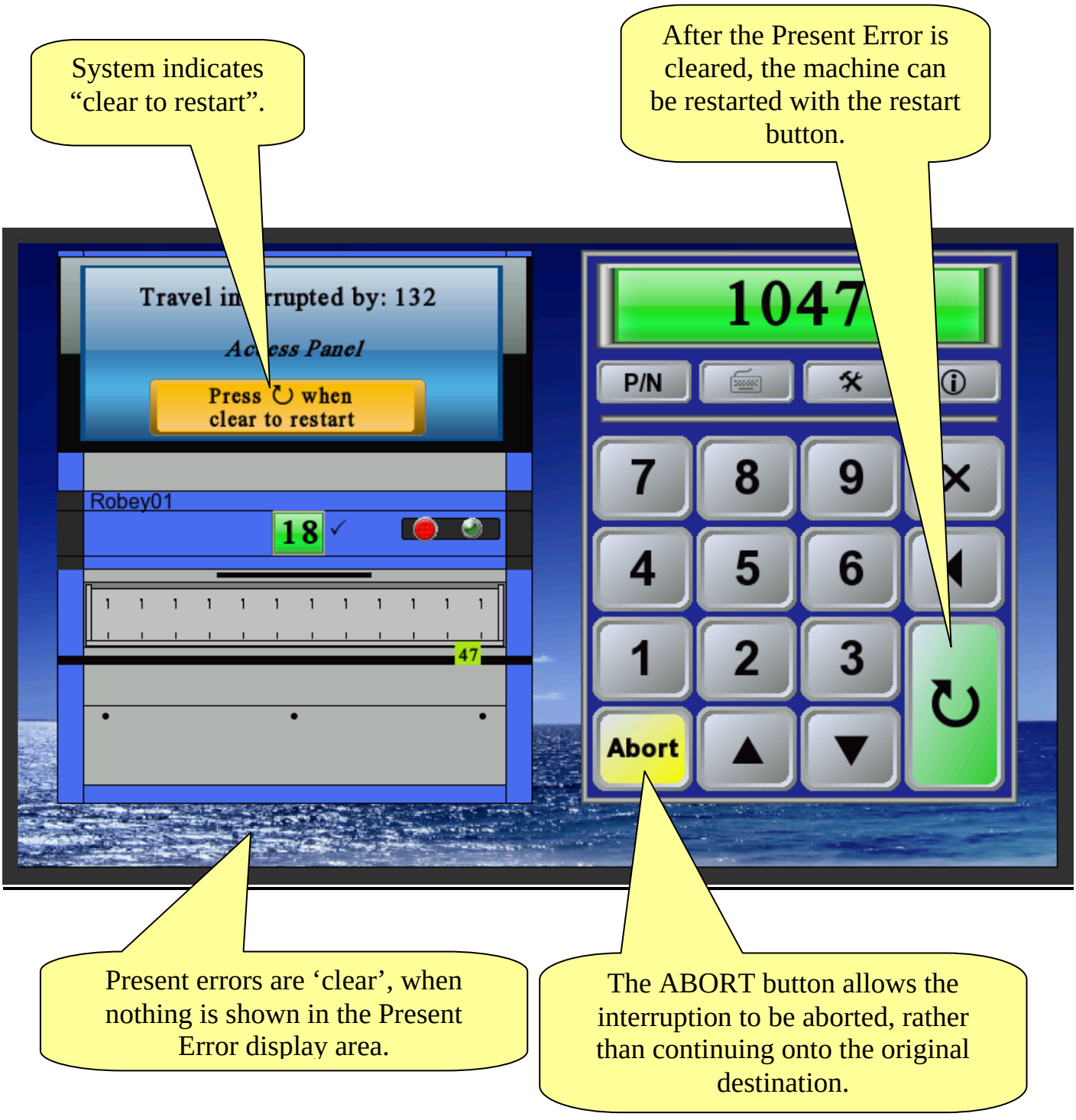


- Present and Interrupted by error displays

The present error is shown at the bottom of the screen. If the machine is interrupted while rotating, it will provide a pop-up information box showing the reason for the interruption. Note that the two errors could be the same, or different. For example, the photocell may have caused the machine to stop but the EStop button could presently be pressed.

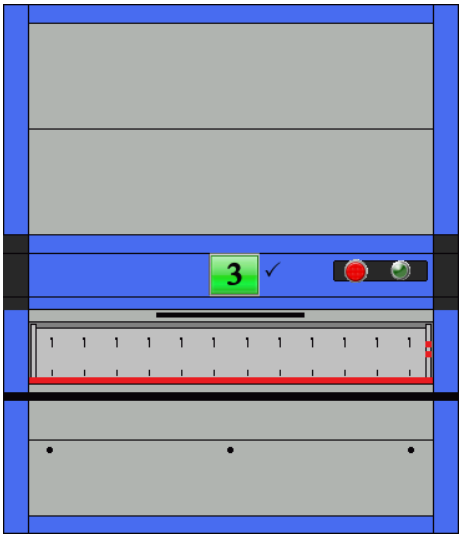


- Restarting the machine after safety interruptions

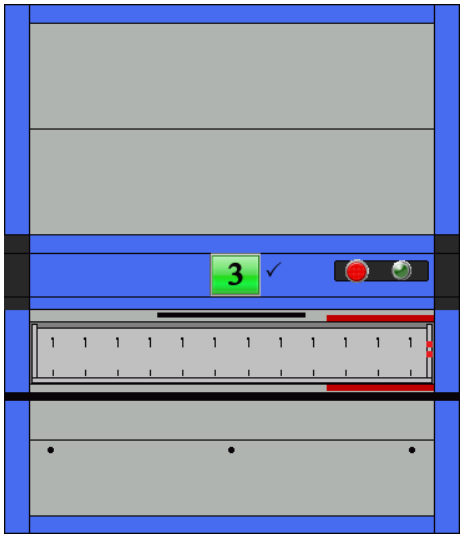


- System Information Panel (SIP)

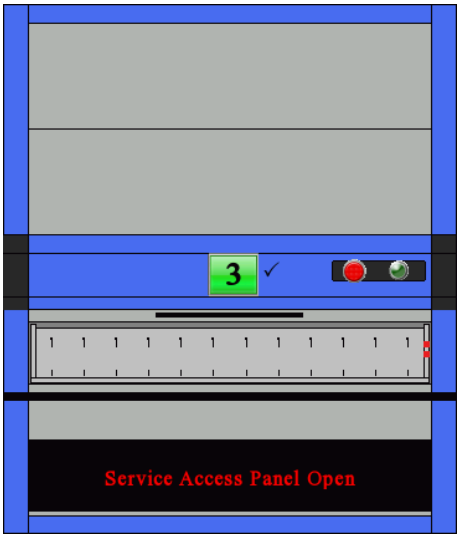
The OP7 has a graphical representation of the vertical carousel to help the operator diagnose system errors and interruptions. Many different graphical icons will be displayed during the normal course of operating the machine. A few are shown below:



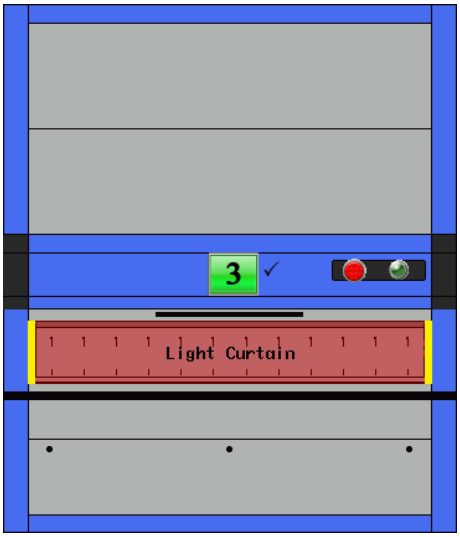
Lower photocell interruption



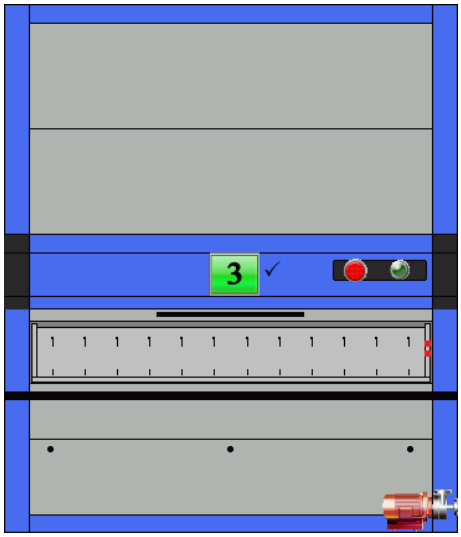
Right-hand door tripped



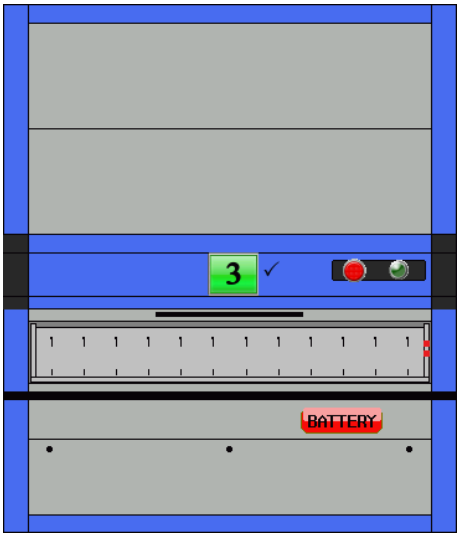
Access Panel is open



Light Curtain interruption



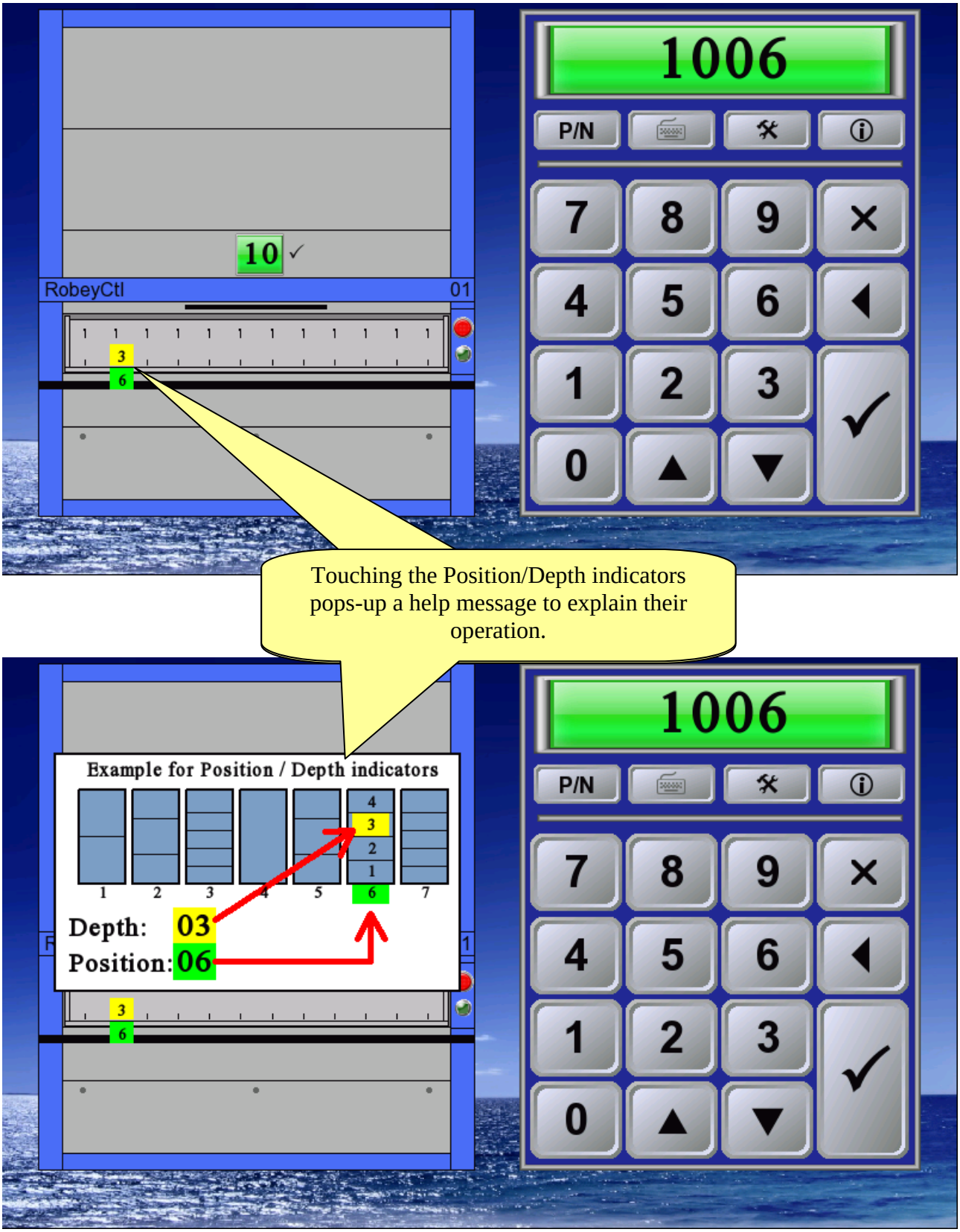
Motor is hot



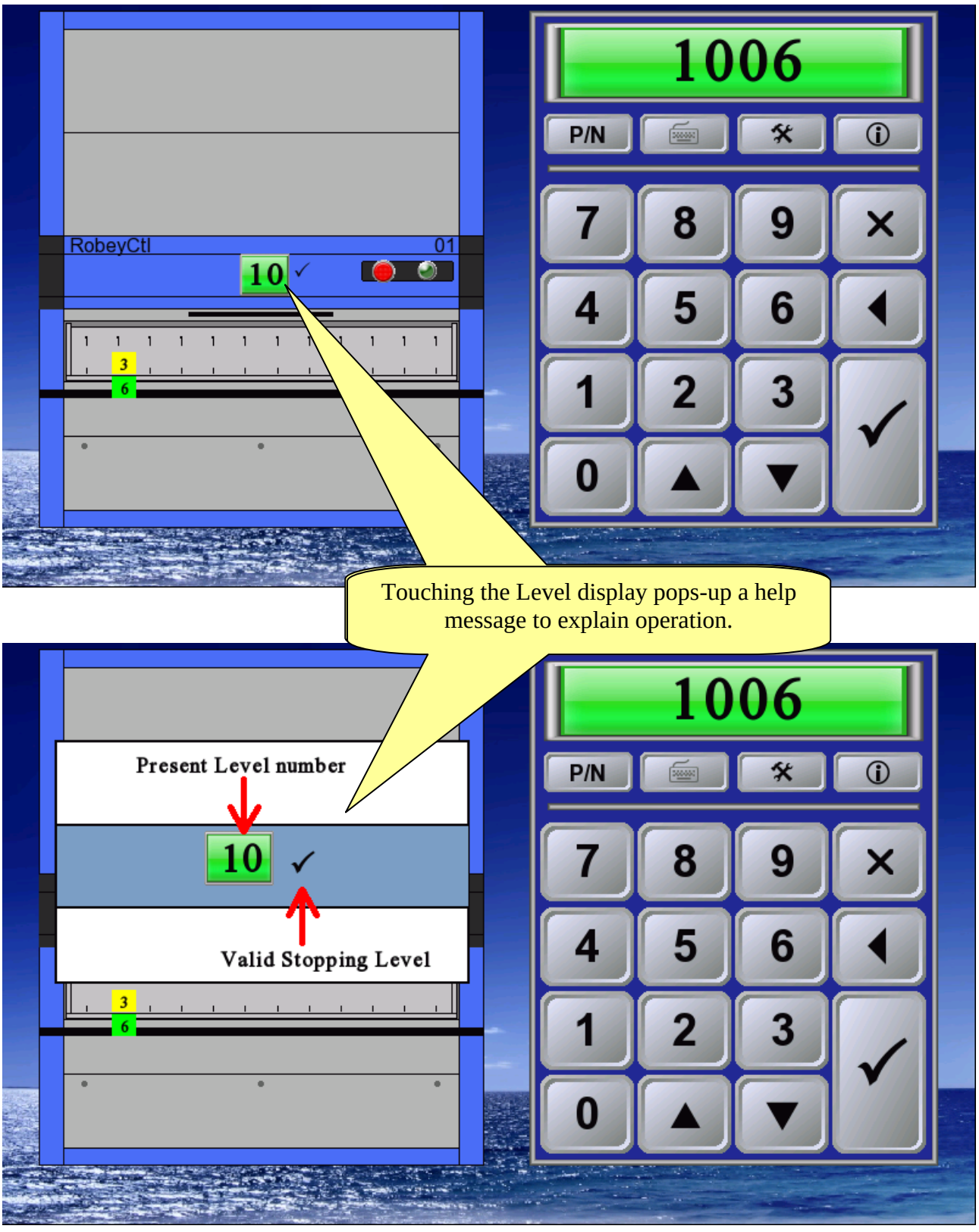
Low battery warning

- System Information Panel (SIP), touch sensitive areas, <u>Position indicators</u>

The SIP has some touch-sensitive areas that provide helpful information or reminders.



- System Information Panel (SIP), touch sensitive areas, <u>Carrier level display</u>



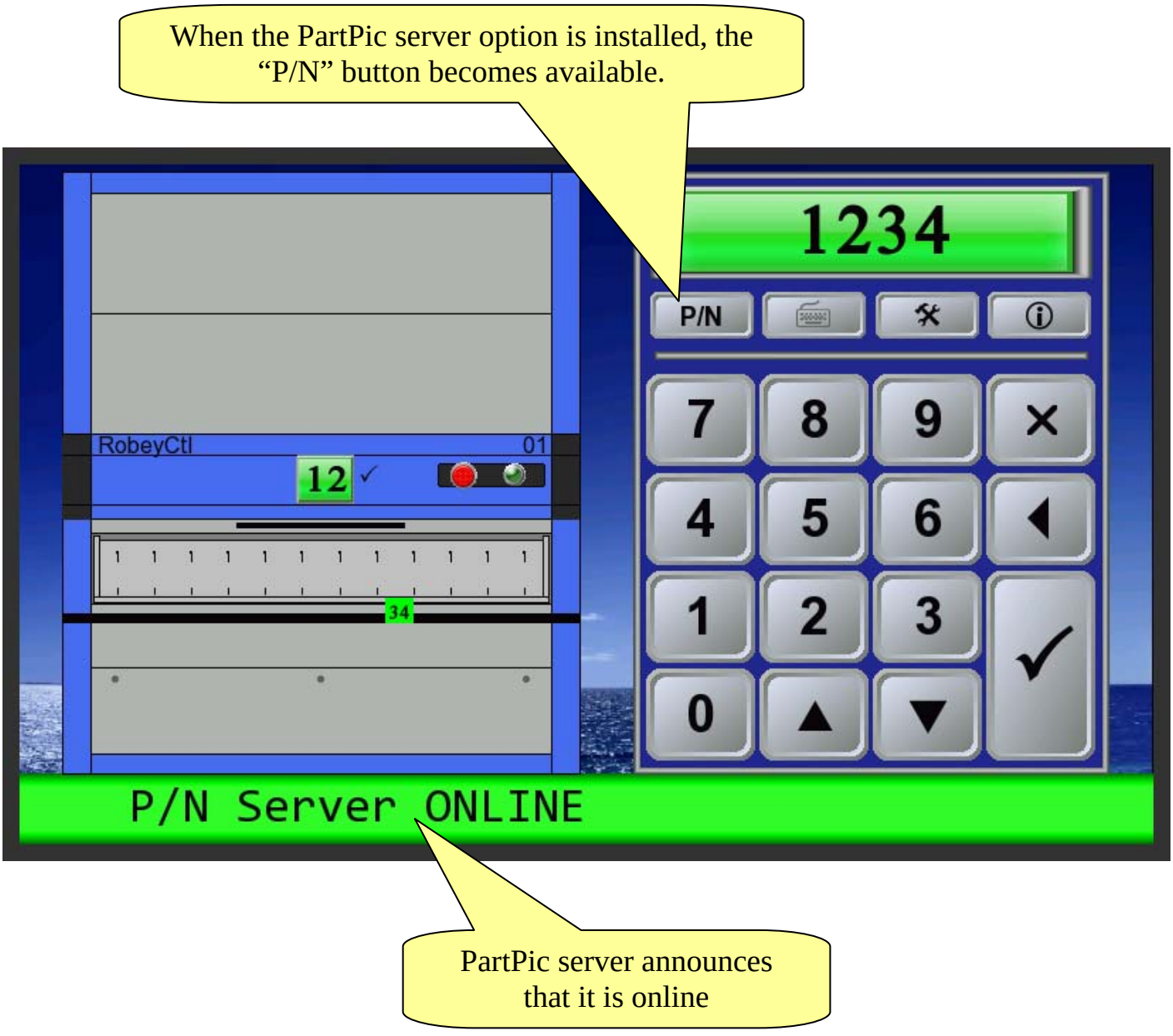
Touch the help box to close it and resume operation.

PartPic SERVER (P/N Server)

- Overview

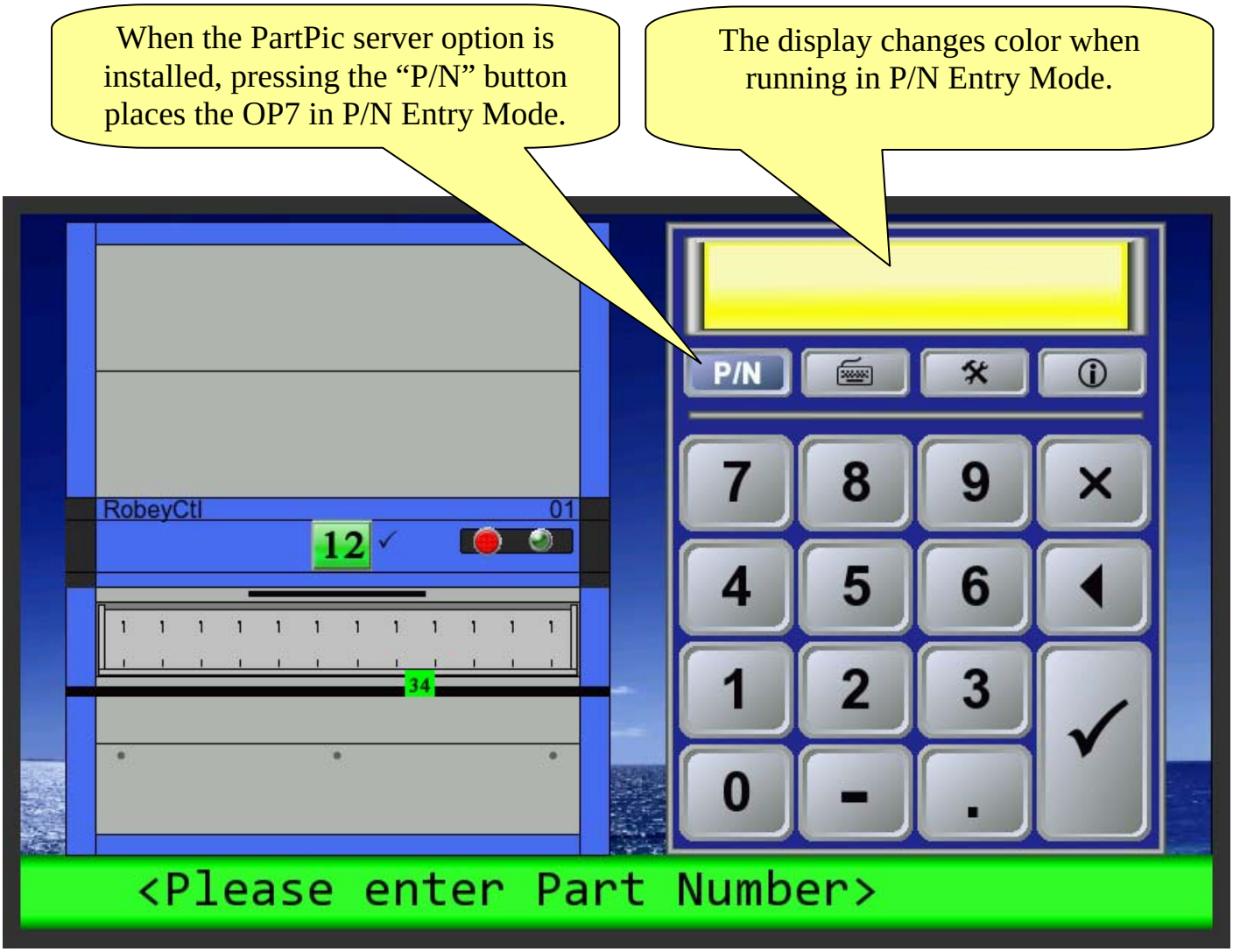
The control panel normally is used to select a shelf level and deliver it to the workstation level. It does not have the ability to find inventory based on part numbers on it's own.

An option called "PartPic Server" is available that provides the ability to locate Part Numbers within the system, by using a remote database stored on an external PC. Operators can enter a Part Number (P/N) directly on the OP7 keypad using the touch numeric keypad, the touch QWERTY keypad, the external USB keypad or a barcode scanner. PartPic server will return the storage location for the associated part and deliver it for operator access. The operator then has the ability to report the number of pieces for the transaction, and PartPic will keep the stock location inventory up-to-date.

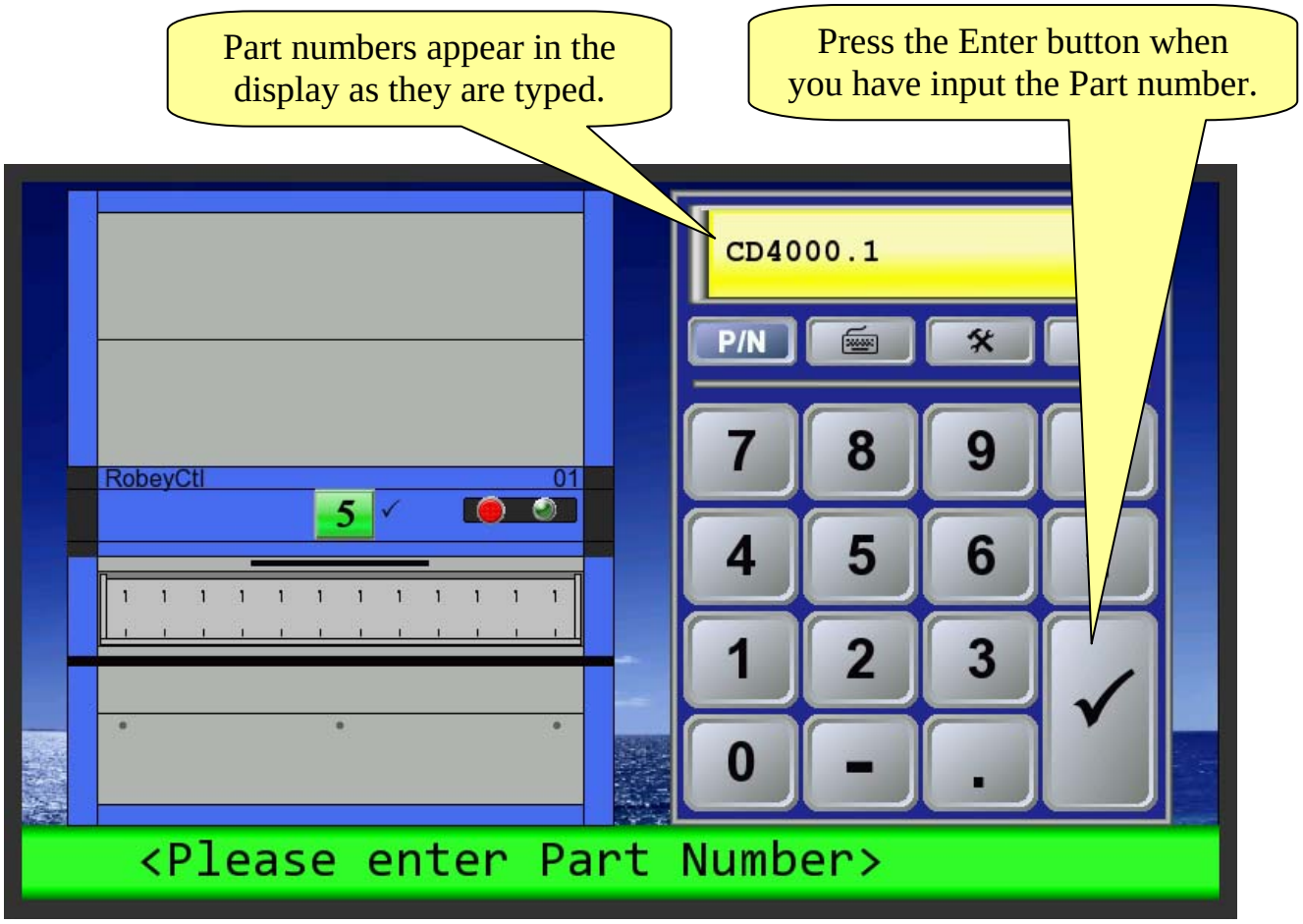


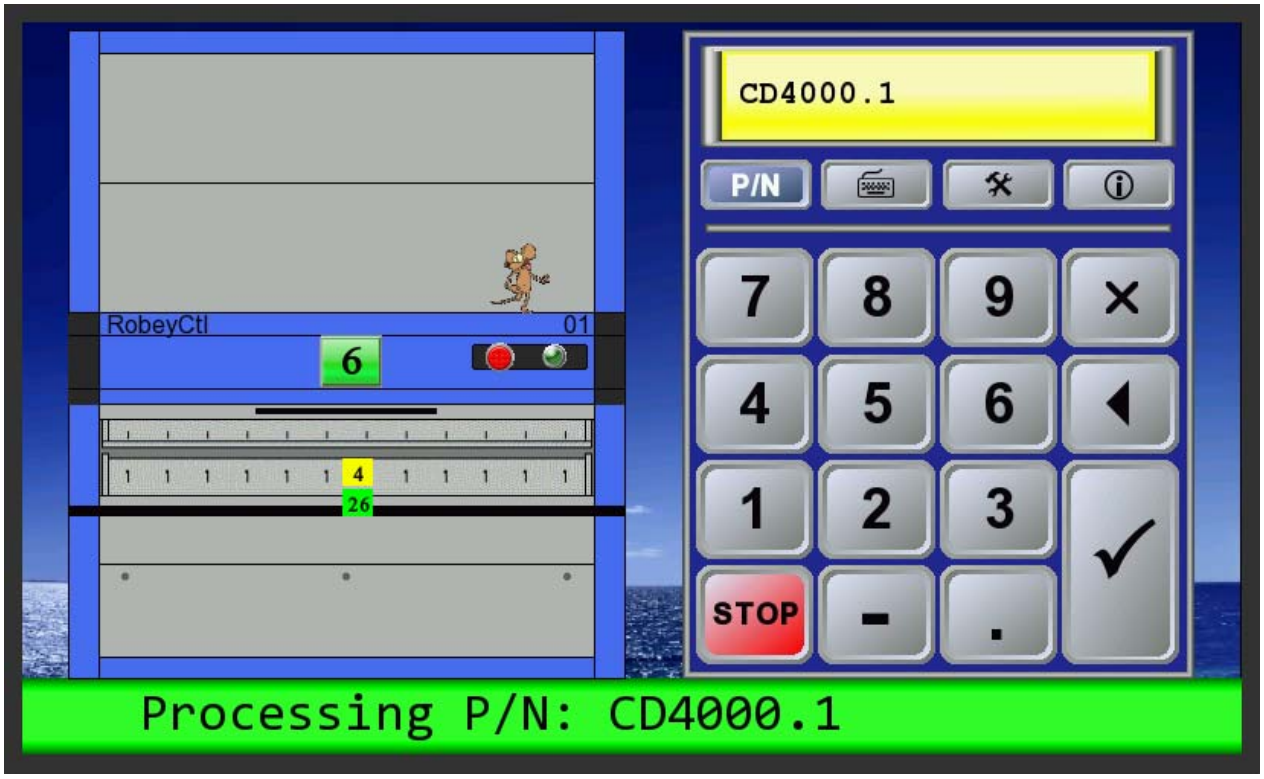
- Entering Part Numbers

Pressing the P/N button on the OP7 places it into P/N entry mode. Part numbers can now be entered into the system for recall by the PC running PartPic server.



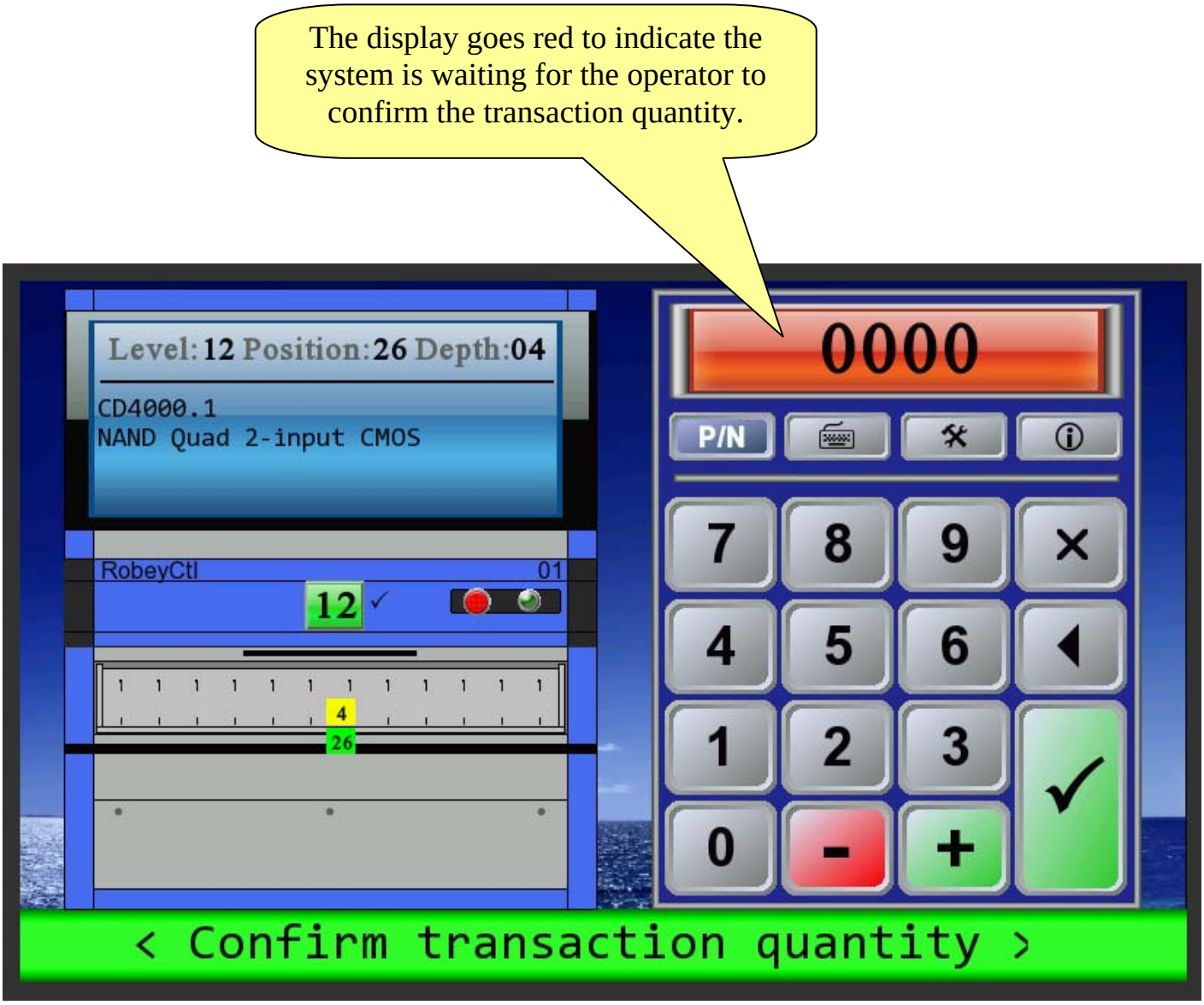
The operator can now enter Part numbers into the display using the numeric keypad, or the pop-up QWERTY keypad, or the external USB keypads, or the barcode scanner.





- Confirming transactions

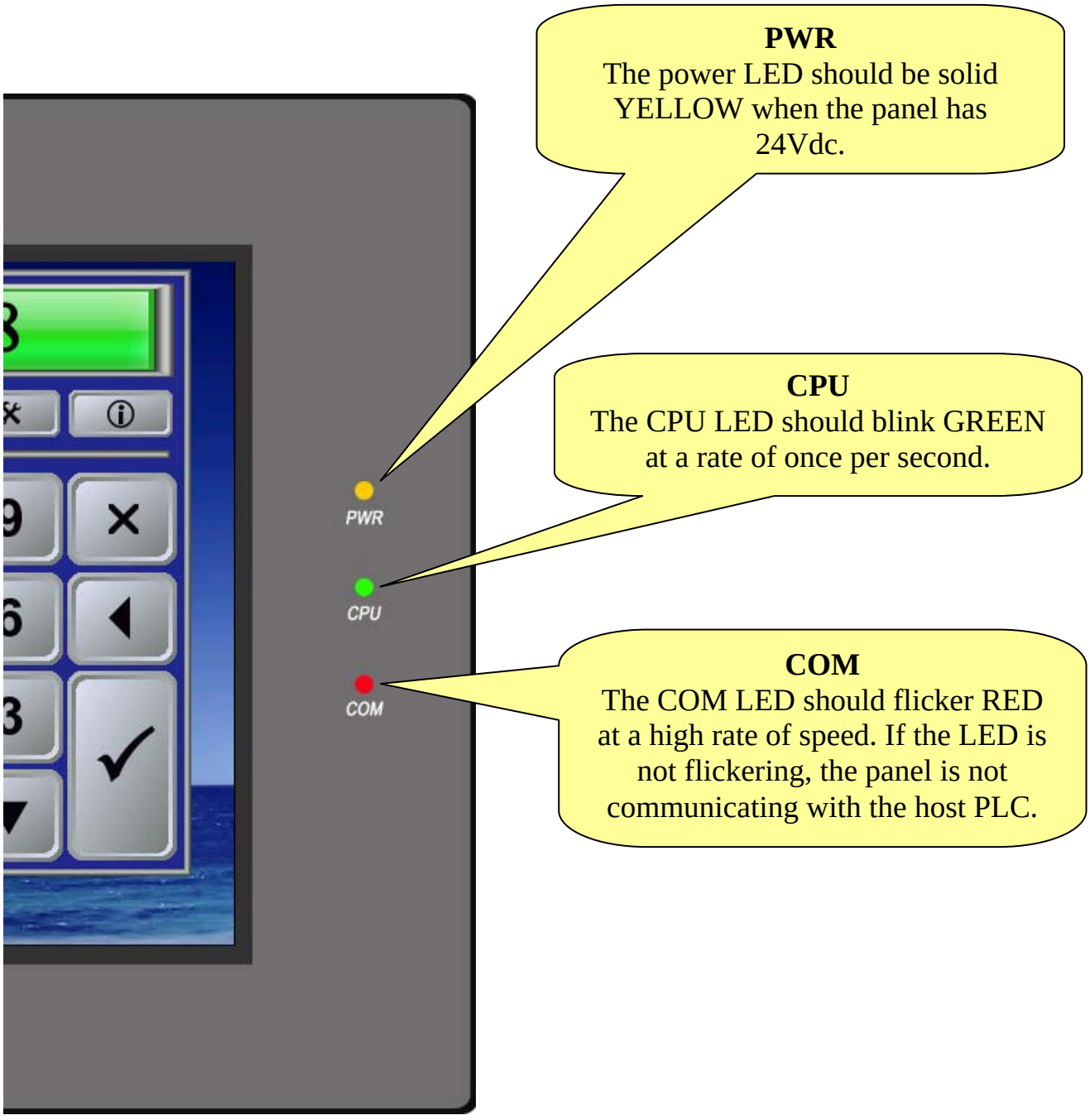
Once the machine reaches the storage location for the item, the transaction quantity can be confirmed to adjust the inventory level.



BUTTONS & INDICATORS

- Indicator LEDs on bezel

Three LED indicators on the right side of the Operator Panel face indicate various operating conditions as follows:



- Overview, mounting locations

Each system includes push-buttons and indicator lamps for interface with the operator. These button-plates include an emergency stop button, safety reset button, green status indicator light, white pilot (control power on) light, and a joystick for up and down control of the machine.

There are typically two mounting locations for these button-plates including vertical and horizontal mounting configurations, but they both perform the same functions.

Mounting options

EMERGENCY STOP

Press this button (smack it!) anytime the machine appears to be operating in an unsafe manner!

Horizontal Mount

Typically used for retrofits on carousels produced with an overhead “front-case” from 1985 – today.

Vertical Mount

Typically used for retrofits on carousels produced with MP-Controls from 1983 - 1985

- Button Plate, EStop, Green Reset, Pilot Light and JOG Stick

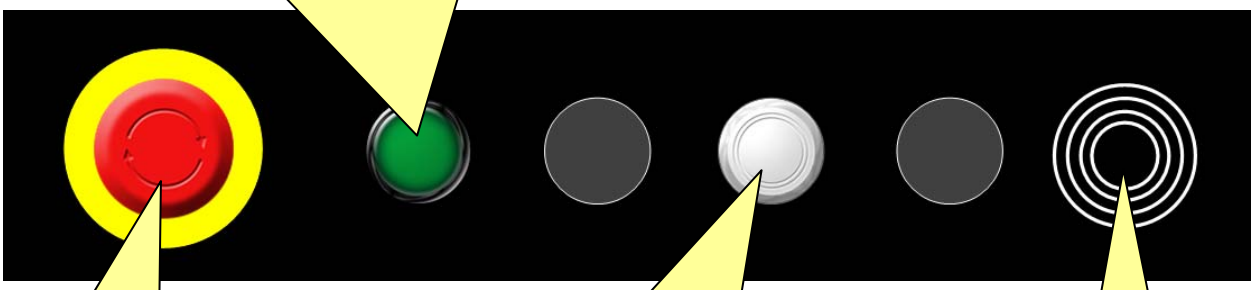
Reset Button/indicator

This GREEN button is pressed to energize the machine's safety system when the operator is ready to use the system.

It will illuminate GREEN when the safety system is ready for operation.

It will blink when the control system is ready to be reset, indicating that it should be pressed when the operator is ready.

OFF	Not Ready	The unit has a safety violation, and is not ready to be reset.
BLINKING	Waiting	The unit is ready to be reset; push the button when the machine is clear for operation.
ON	Ready	The unit is reset and ready to operate.



Emergency Stop (EStop)

Smack (press hard and quick) this button any time that you or another operator are in harms-way, or the machine is not behaving as expected

To release, twist the button clock-wise until it pops out.

Pilot Light

The 'Pilot Light' indicates that the controller has control voltage (power); basically showing that it is switched ON.

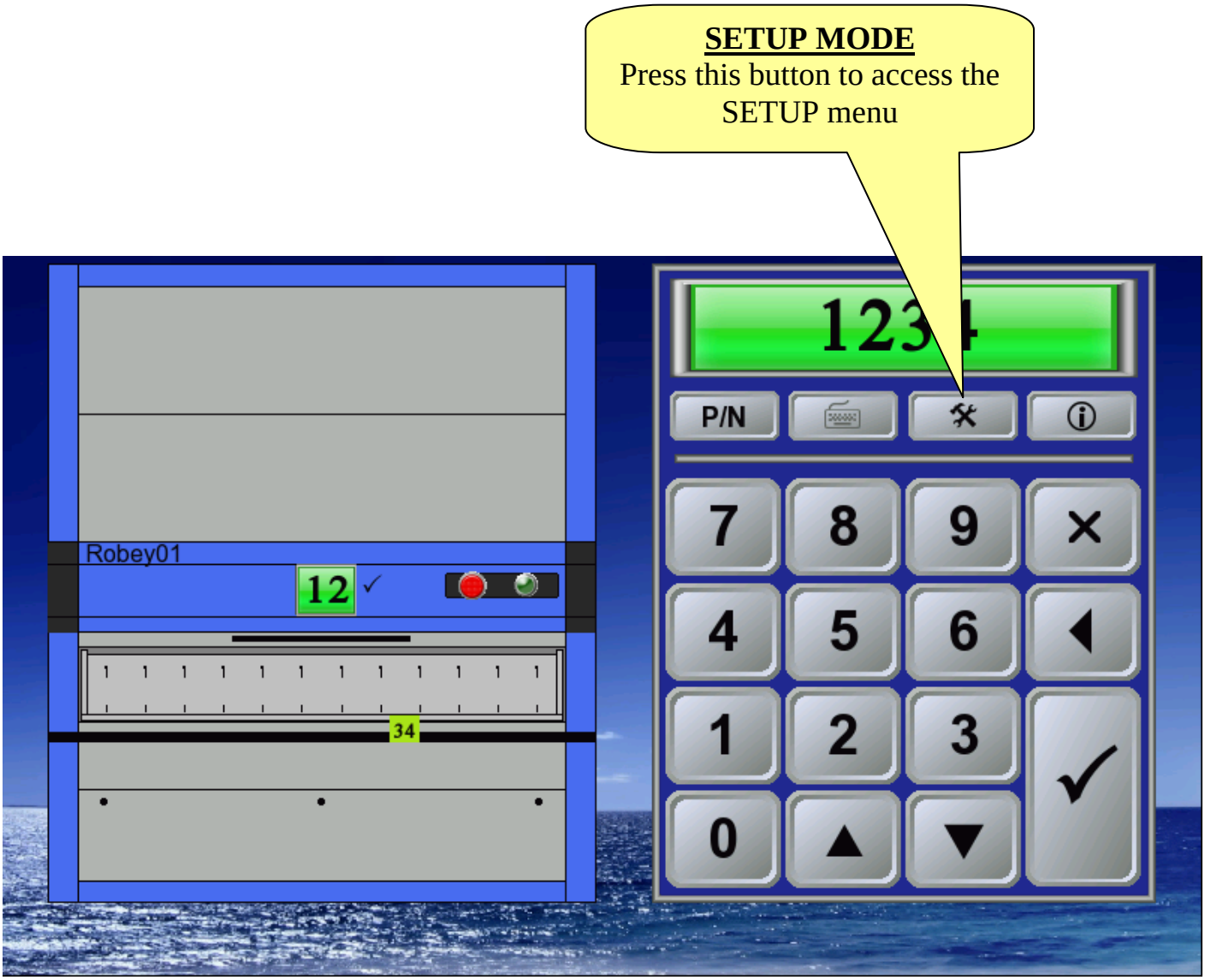
Joystick Control

The joystick can be used to move the machine UP or DOWN.
The machine must be 'Ready' for this to function.

SYSTEM SETUP MENU

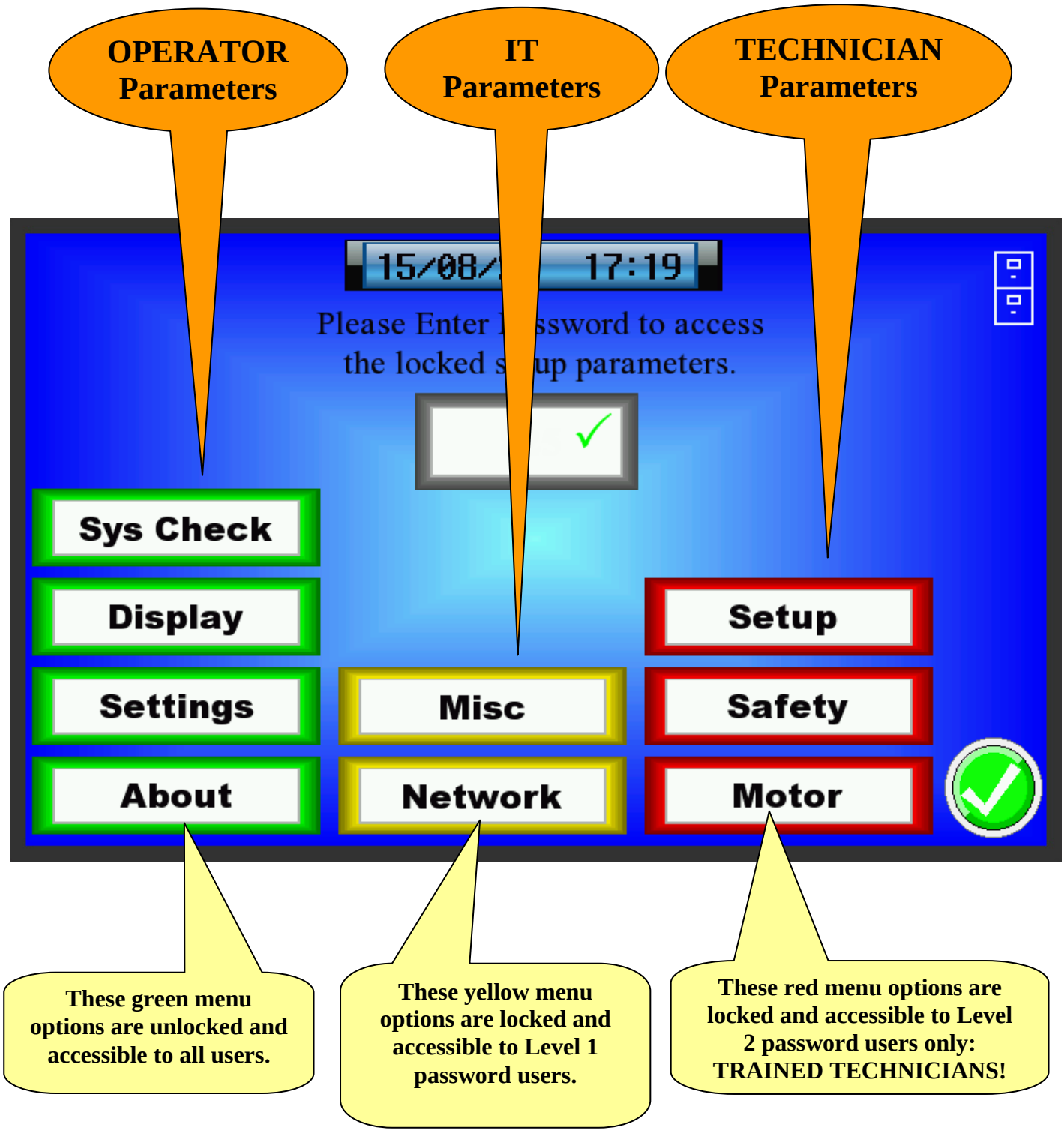
General Setup menu

Upon entry to the SETUP menu by pressing the SETUP ( ) button on the main keypad, the date and time should be shown along with various menu option buttons as shown on the following page.



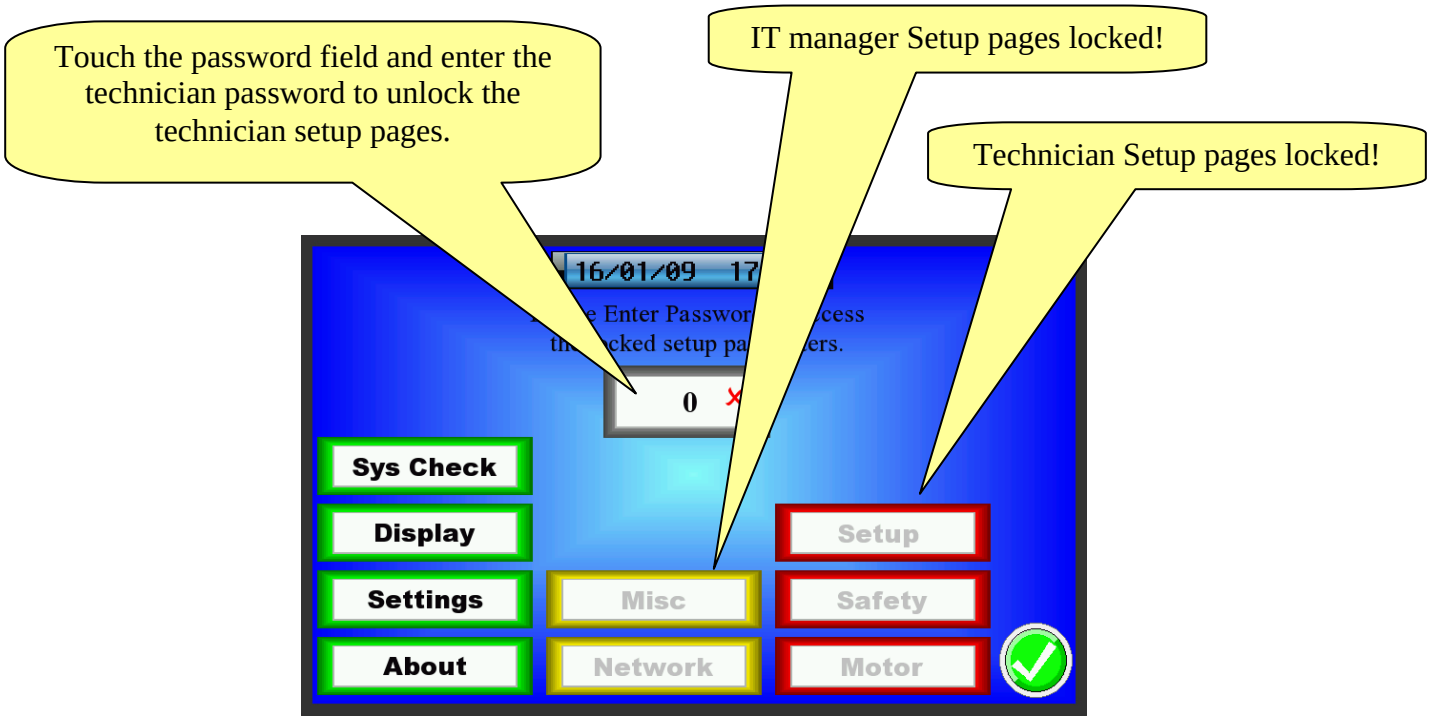
- Setup menu groups

The following Several options are available to the general operator at the bottom, as shown with the buttons with Green and/or Yellow frames. The other more critical setup functions, shown in Red frames, are disabled without a valid password and only recommended for trained technicians. When finished, press the green check-mark in the lower right-hand corner to return to the main operating screen.

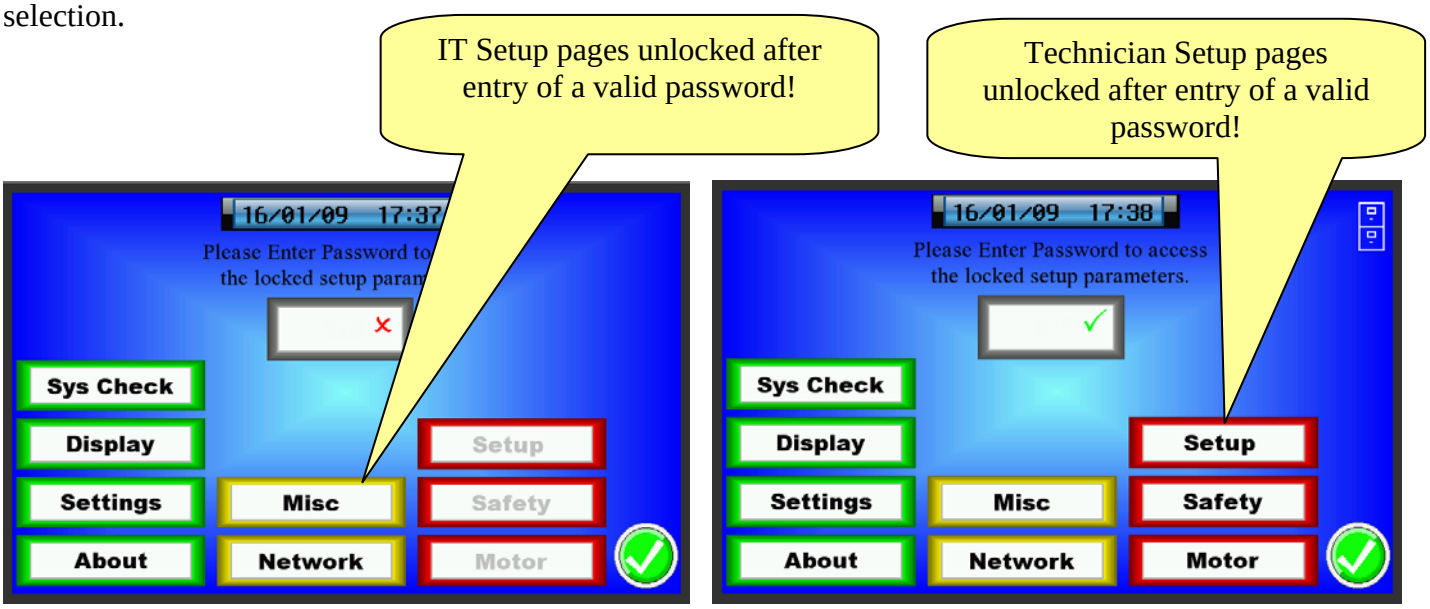


- Technician Settings

The following section requires password authentication for access. It is intended for trained technicians. Touch the password field to obtain the pop-up keyboard to access the secured areas.



After a valid password is entered, either the IT Manager and/or the Technician Setup pages are available for selection.



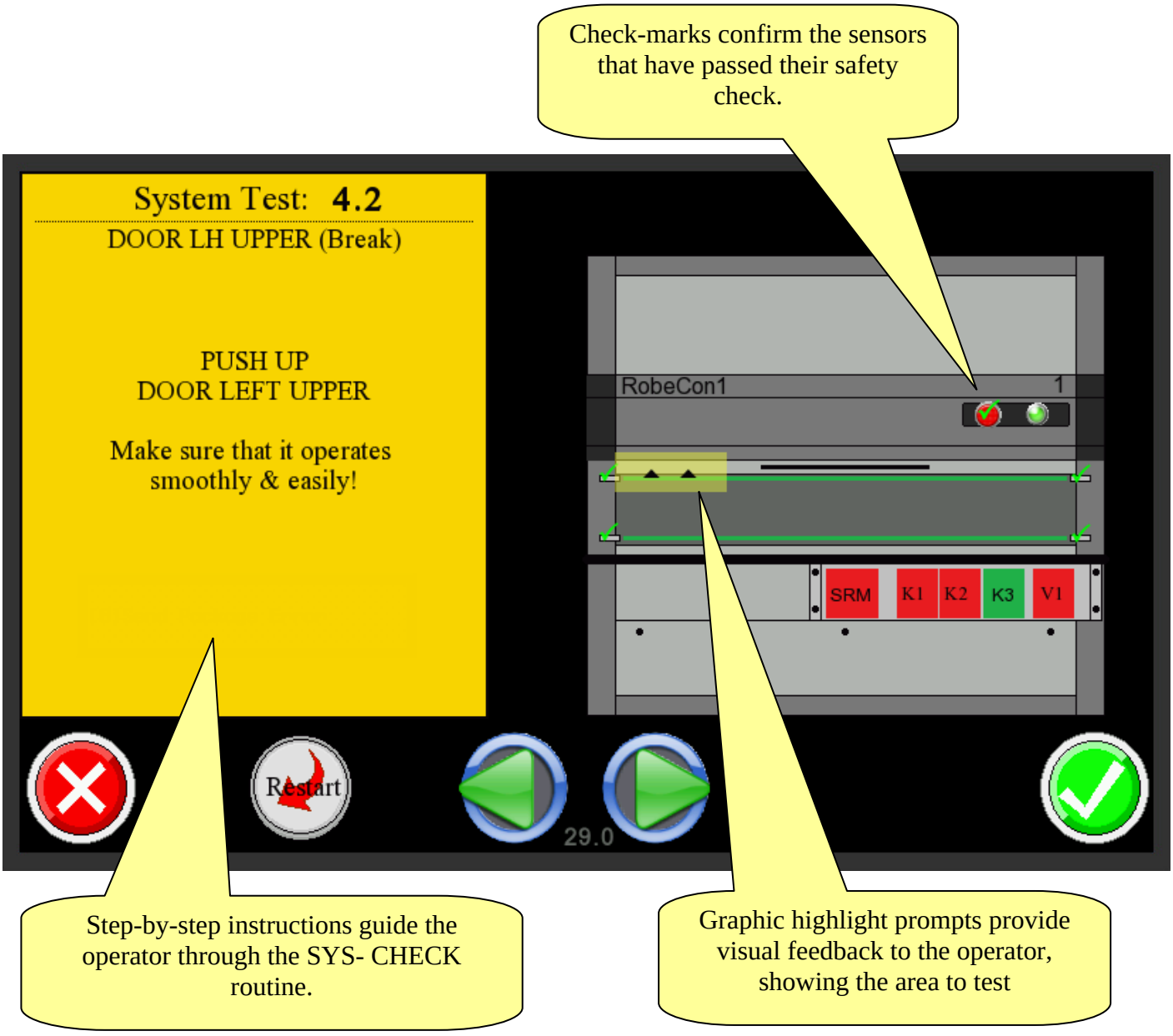
Contact Robey Controls or your local dealer for the associated passwords.

Sys Check

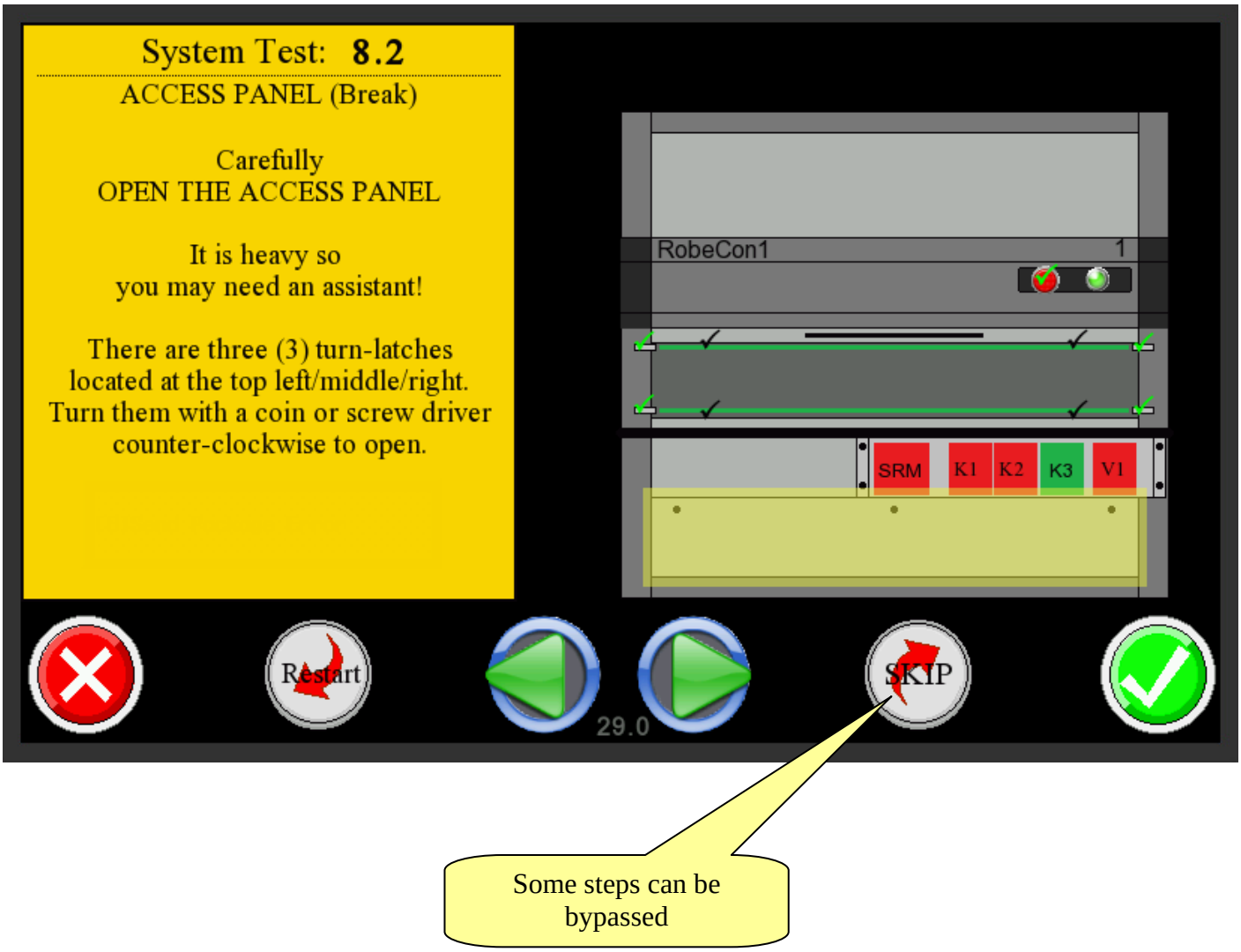
[29.0] SYS CHECK

The System Check routine steps the operator through the process of checking the machine's safety sensors. It should be performed on new installations, when any changes to the machine's safety systems are made, and periodically during usage of the machine as defined by the customer's management.

The controller will force the SYS-CHECK routine to be executed once per month, unless otherwise disabled by a technician with the customer Authority having Jurisdiction over machine and personnel safety.



Some of the SYS-CHECK process steps may be bypassed, and are shown when the SKIP button appears. If it is convenient, you should still perform the test occasionally. Maintenance inspections should never bypass the tests – any problems with safety should always be repaired before returning the machine to operating condition!



A technician can bypass this monthly routine via another menu option. A technician with the customer's permission can disable the routine altogether.

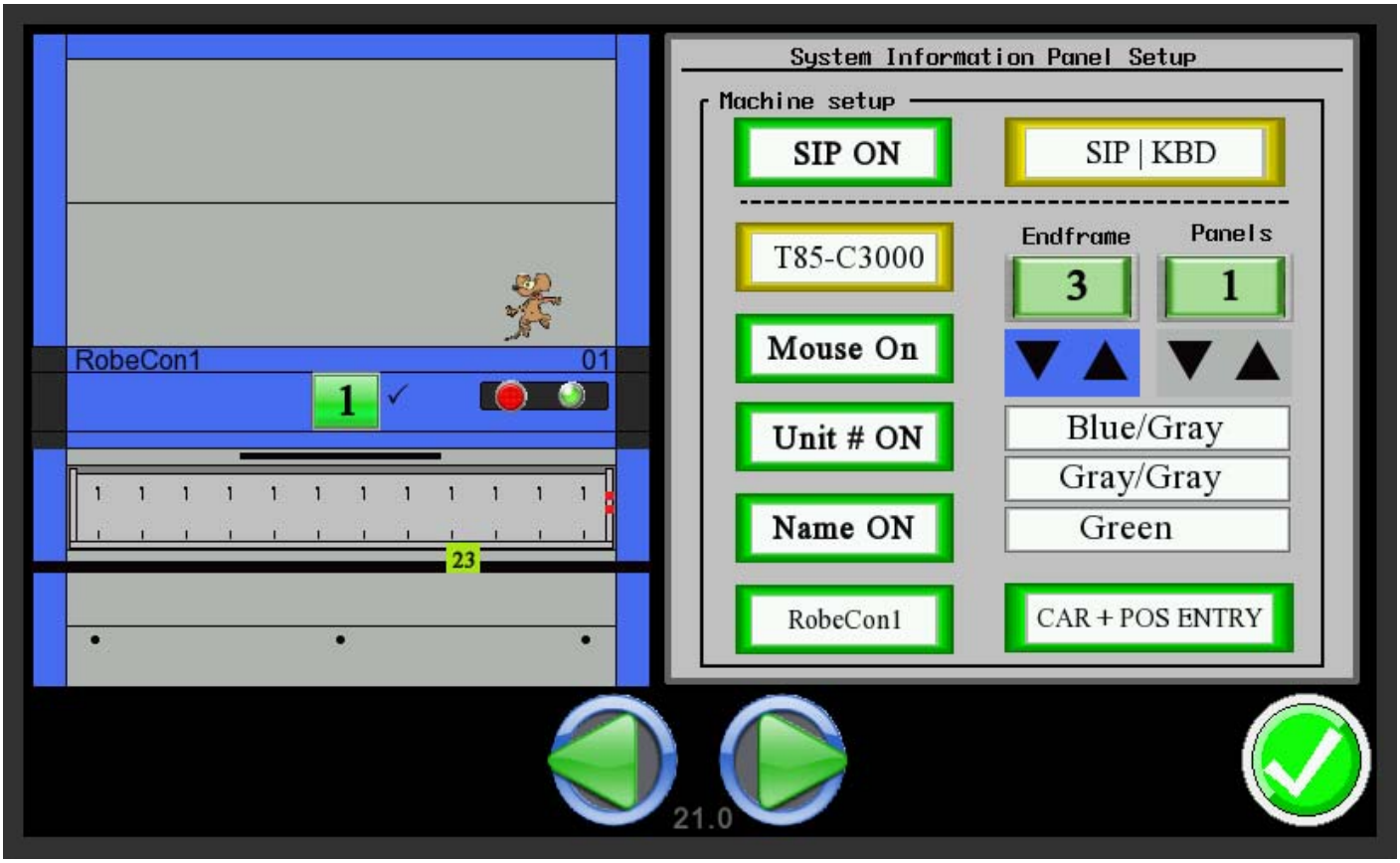
This routine is for the safety of the machine, the operator and maintenance personnel and therefore Robey Controls does not recommend that it ever be disabled or cancelled, but rather the machine safety systems be repaired instead.

Display

The DISPLAY menu allows the operator to setup the OP7 in various operating settings.

[21.0] System Information Panel Setup

The first page is used for setting up the System Information Panel (SIP) according to operator preference. Several settings are available as shown below:

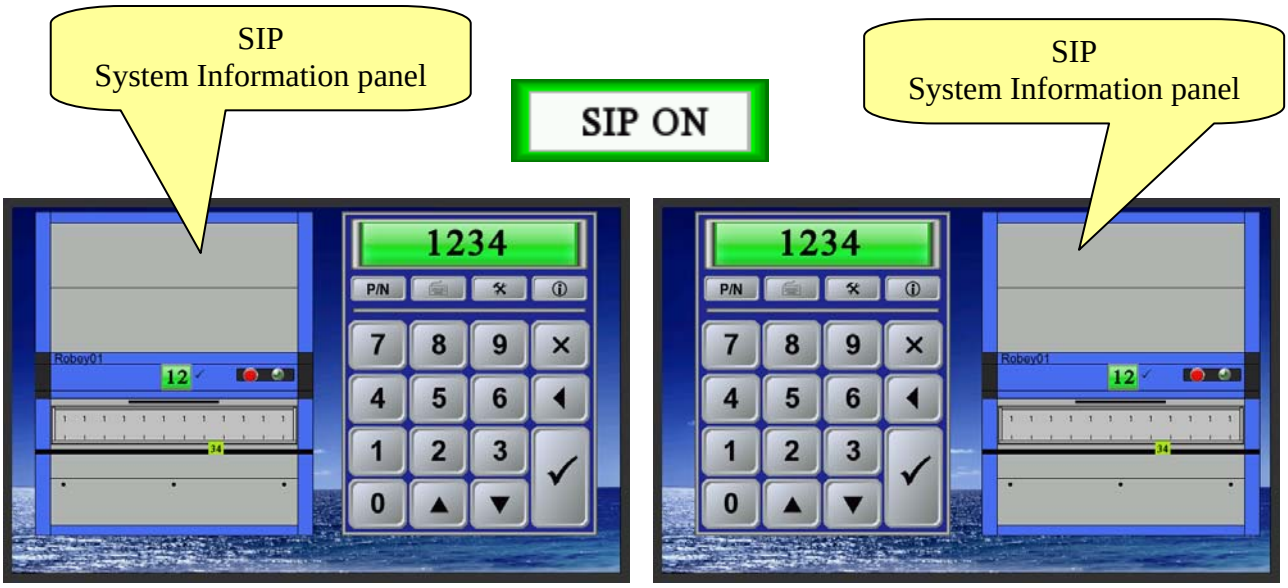


- SIP-ON vs SIP-OFF

Used to SHOW or HIDE the entire SIP (System Information Panel) in the main operating page:

With Right-handed keypad

With Left-handed keypad

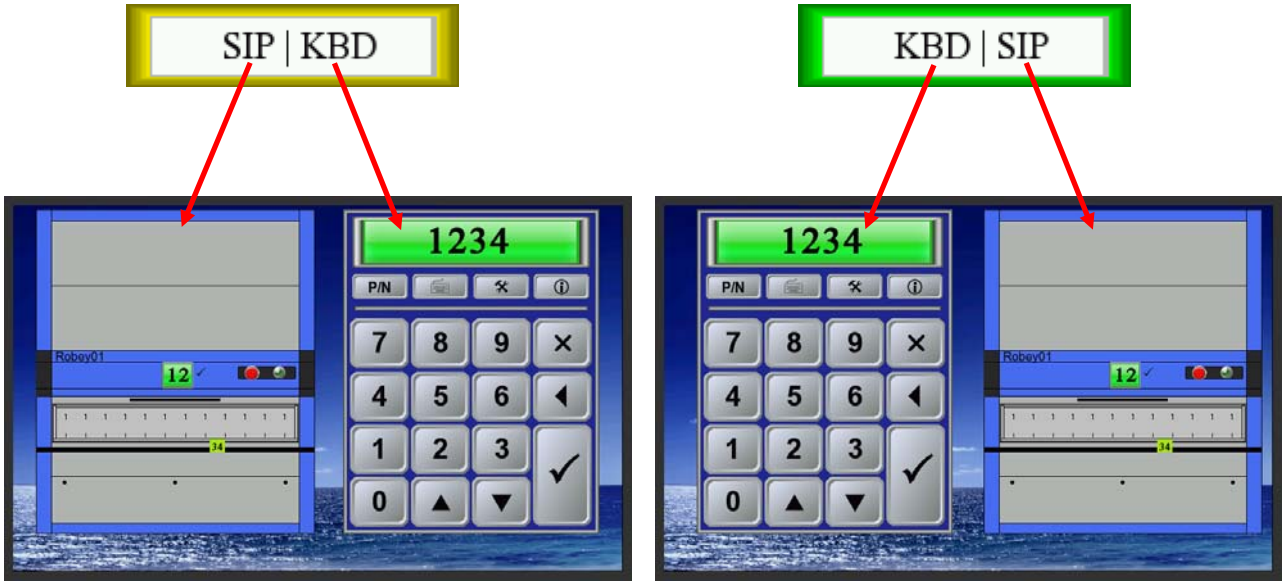


With Right-handed keypad

With Left-handed keypad

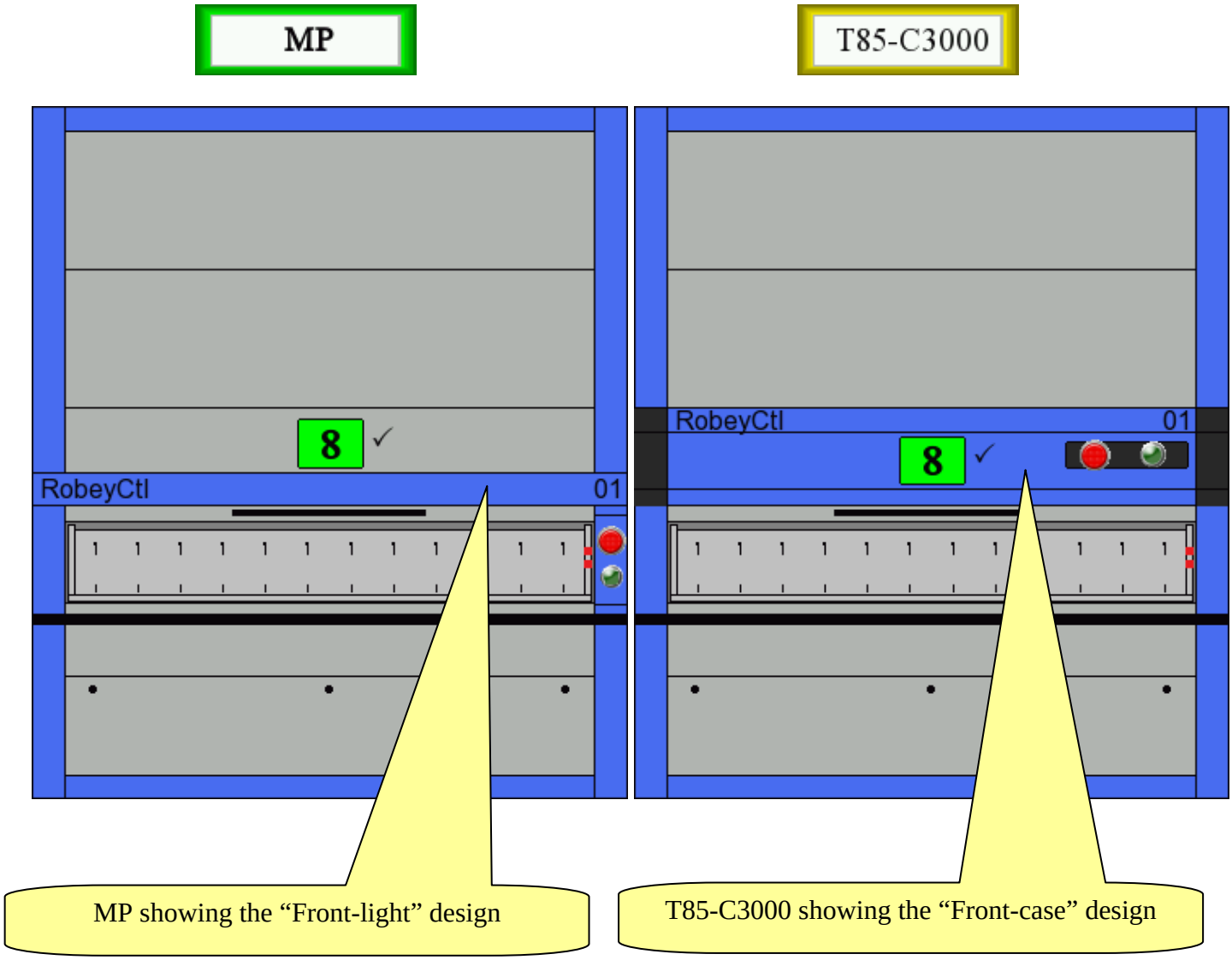
- SIP | KBD vs KBD | SIP

Used to swap the side the keypad is displayed, for left- or right-handed operation. The keypad and the SIP swap sides on the main operating page as shown below.



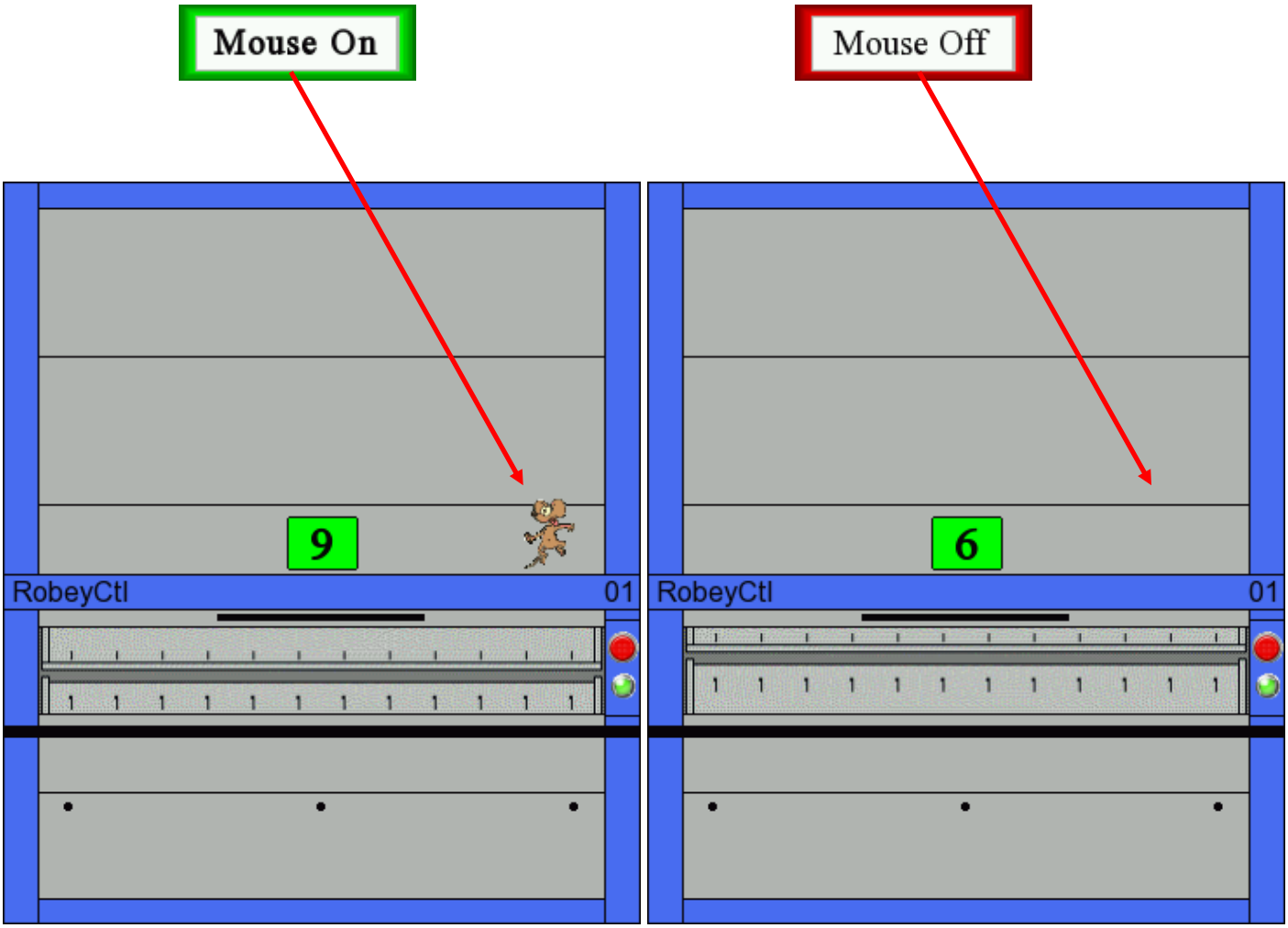
- MP vs T85-C3000

The SIP supports two machine icons representing the manufacturer's model ranges including the MP and T85-C3000 generations, as shown below.



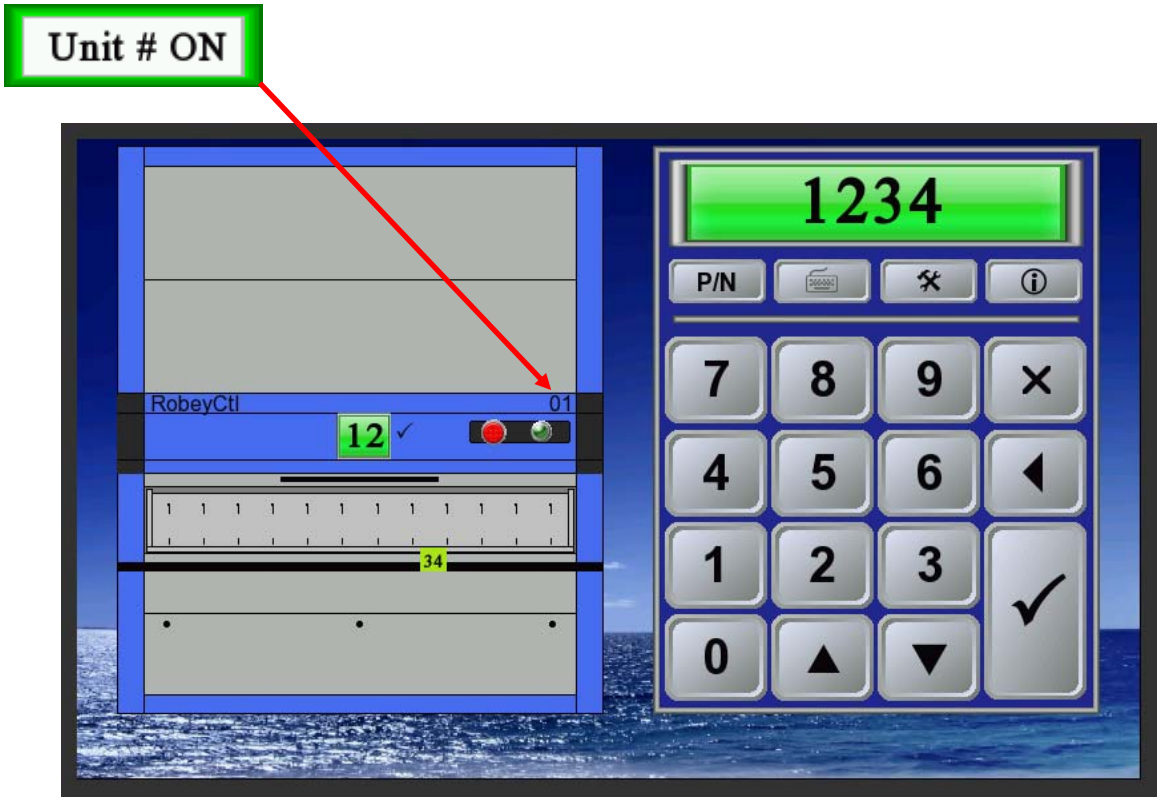
- Mouse On vs Mouse Off

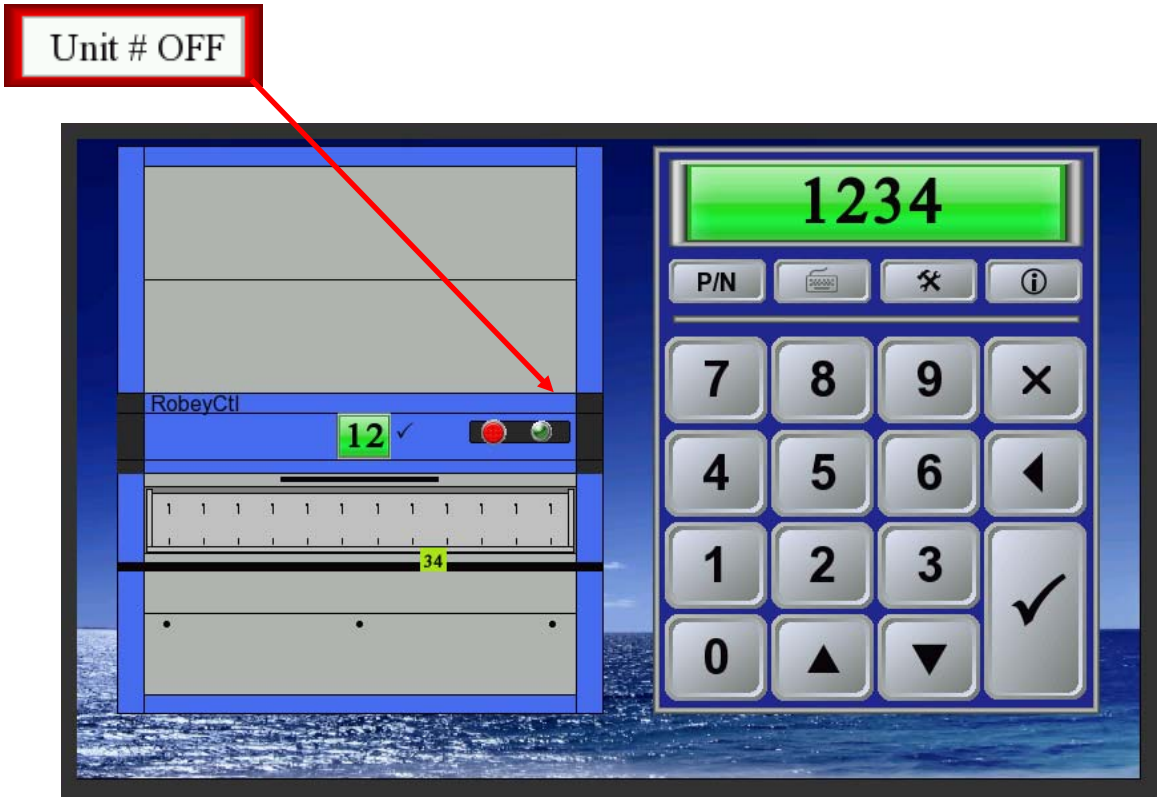
The SIP can show a “machine running” icon in the form of a jumping mouse option:



- Unit # On vs Unit # Off

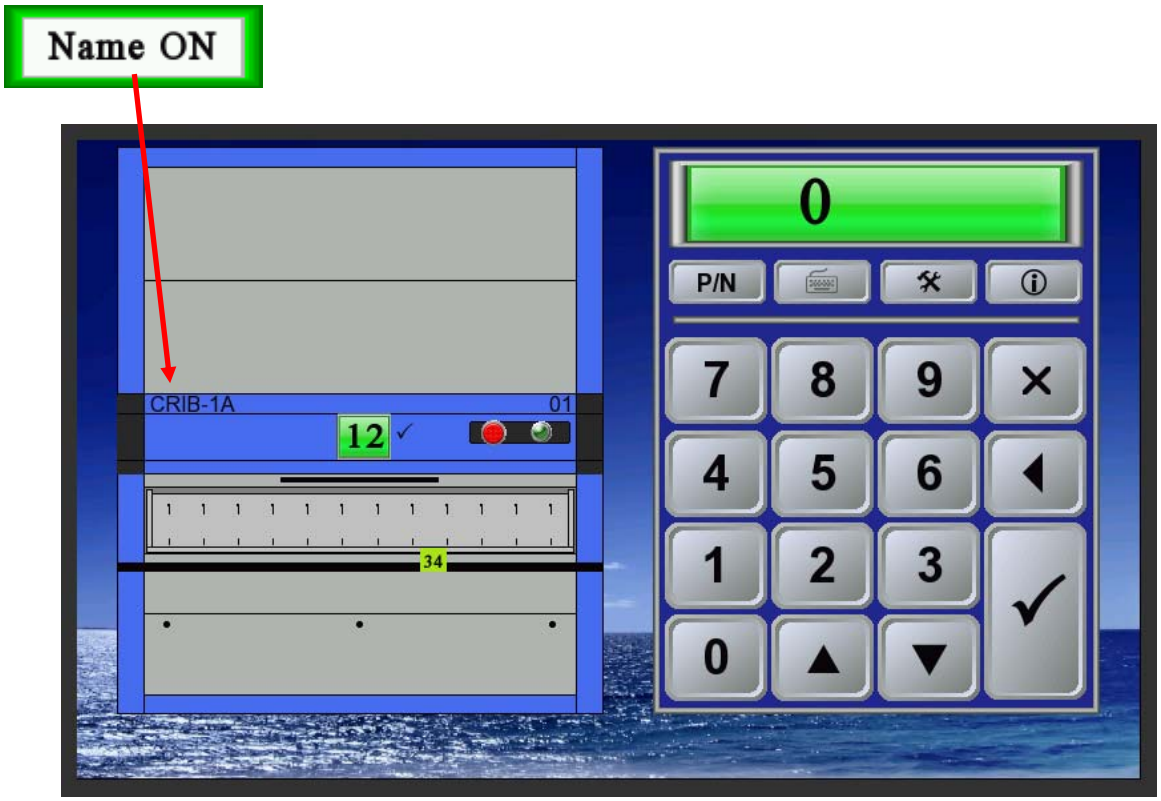
The SIP can show the machine's UNIT # if desired. The unit number is defined via the NETEDIT utility, vie the Ethernet interface option.

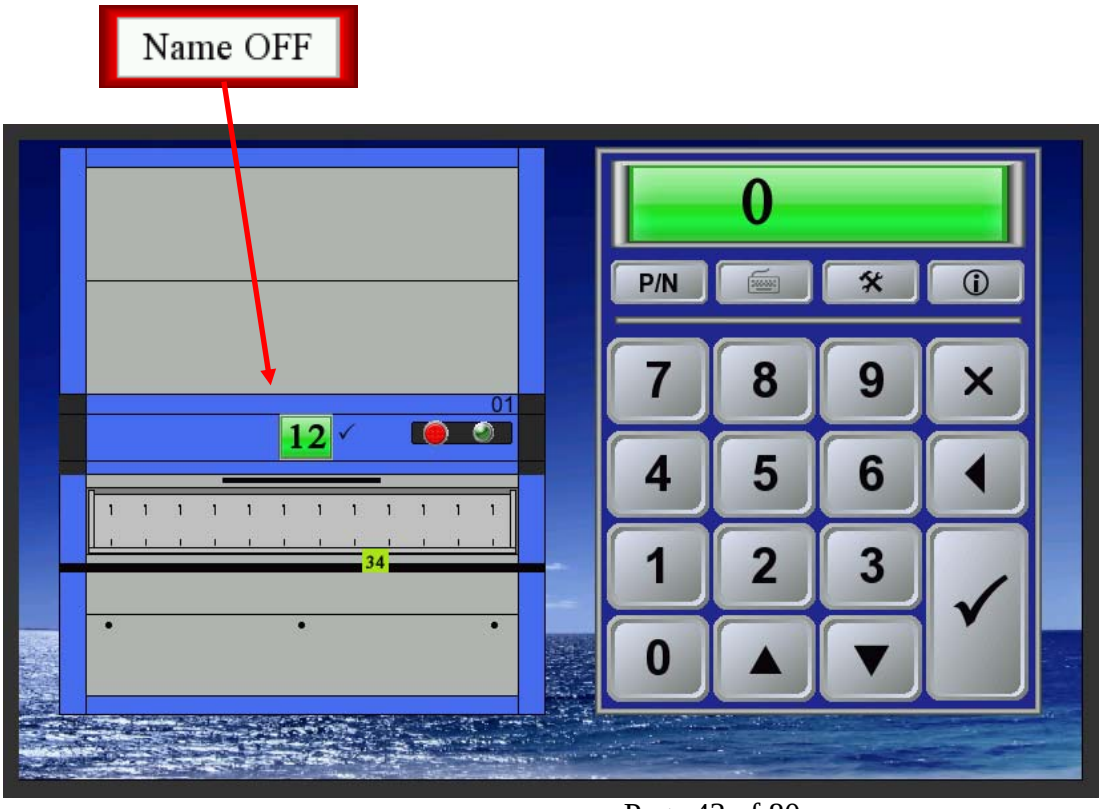




- Name ON vs Name OFF

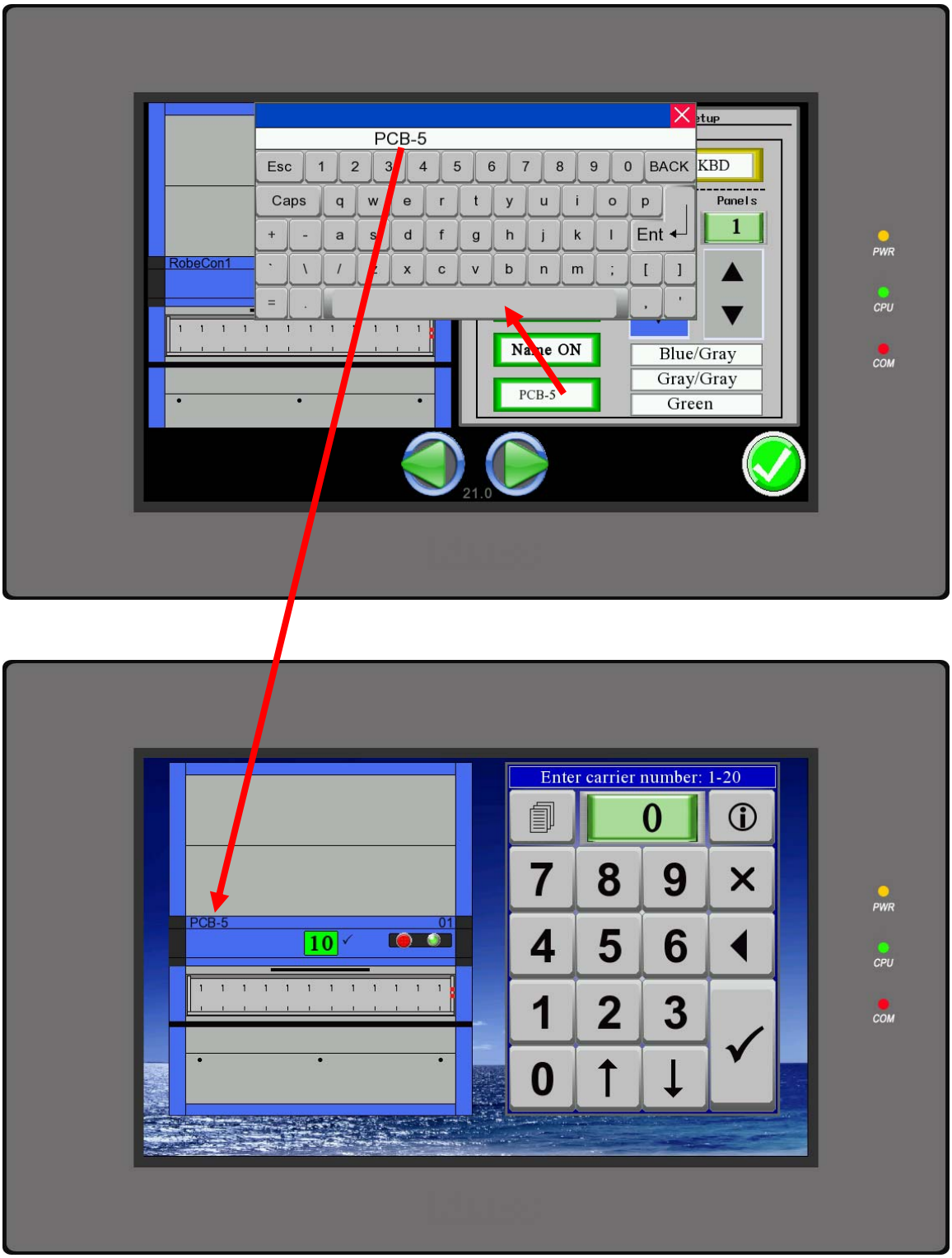
The SIP can show a Unit name if desired. Typical names may be company asset tags, contents, etc. Screws, Elect1, PCB-5 etc are all acceptable names. Typically, the name on the SIP should match the name on the machine if installed.





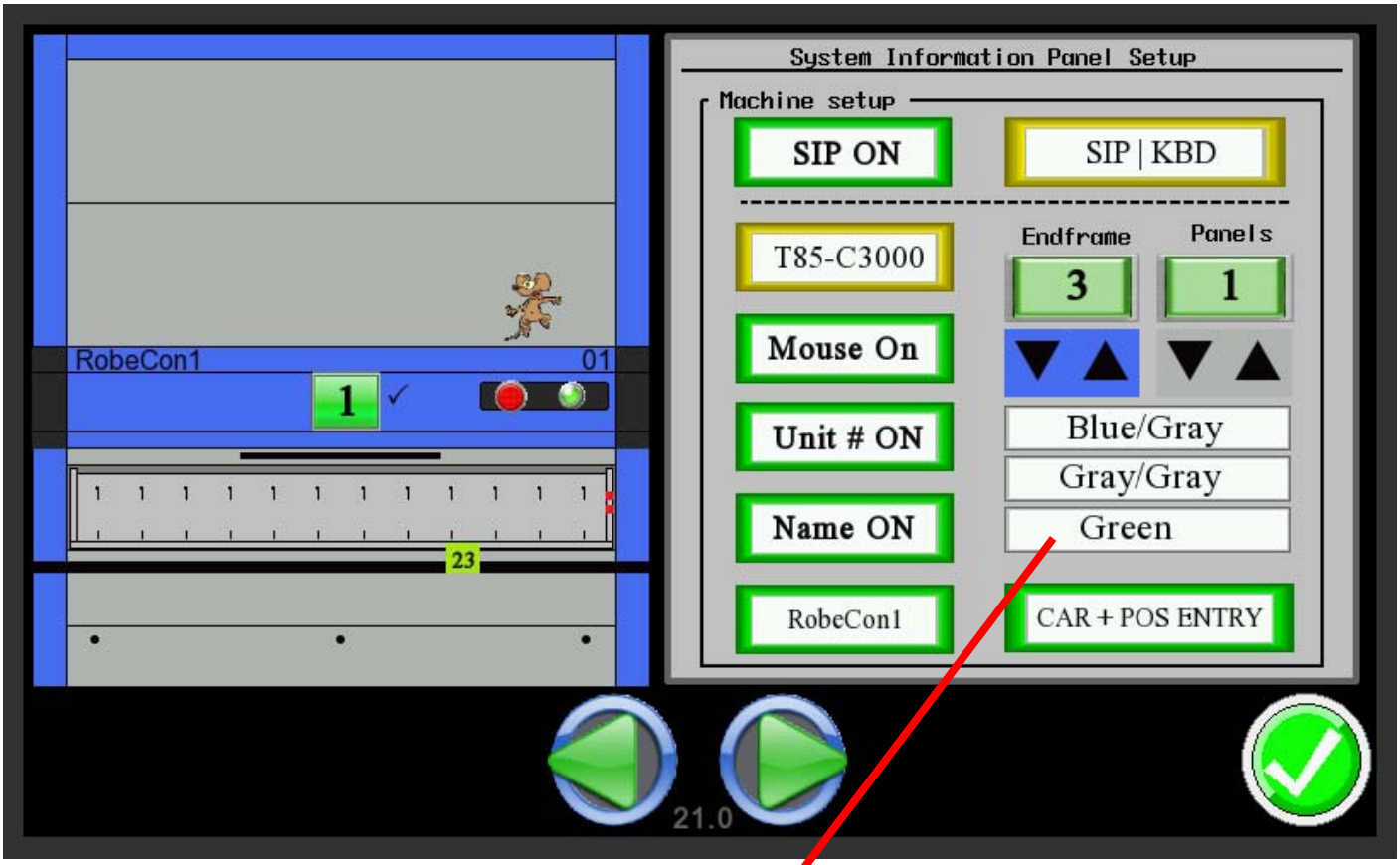
- Device Name

The unit Name button is used to pop-up a text keypad that can be used to define the unit's name, like shown in the example below:



- Endframe & Panel colors

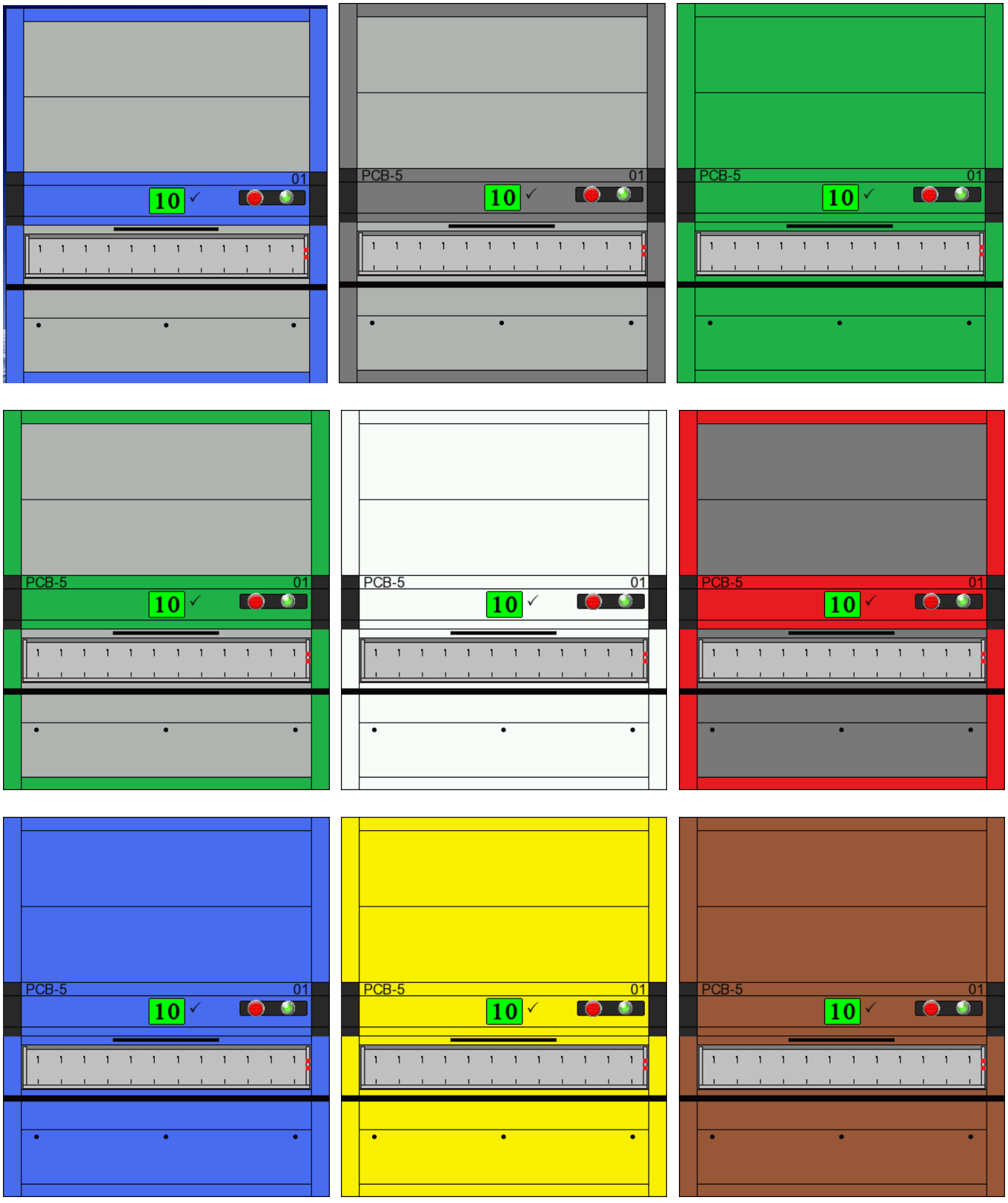
The SIP can be set to match the color scheme of the actual carousel model, using the controls highlighted below:



Color combo macros

- SIP color samples

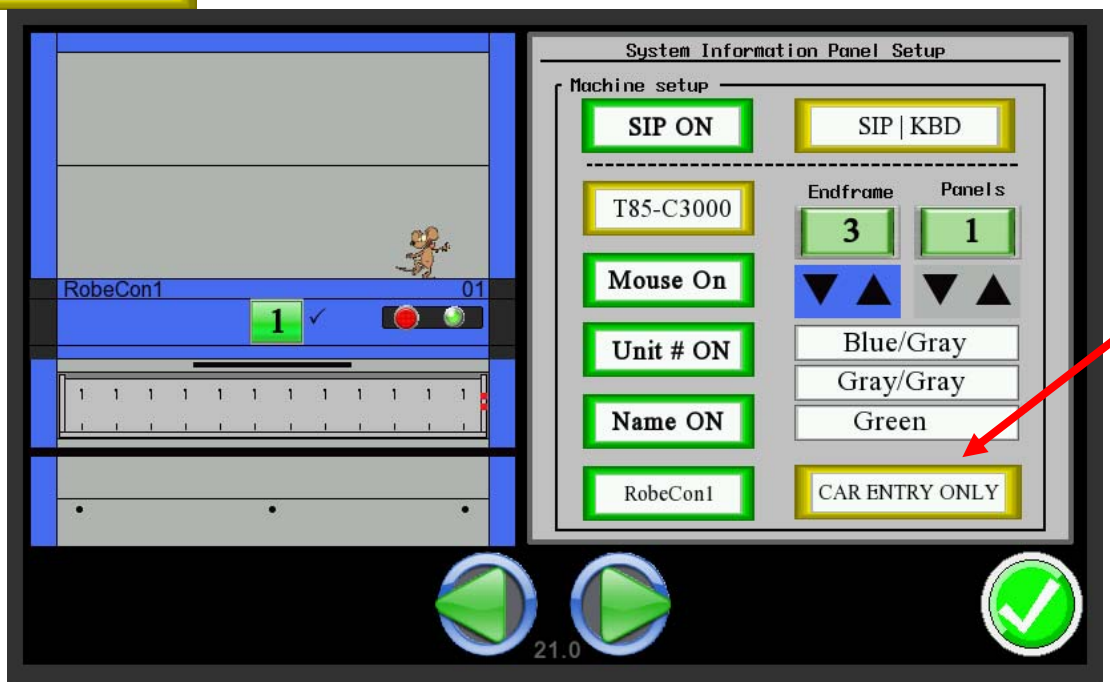
Many standard and color combinations are possible using the eight color options on either the end-frames or the body of the machine. A few default color combos are available for the common combinations.



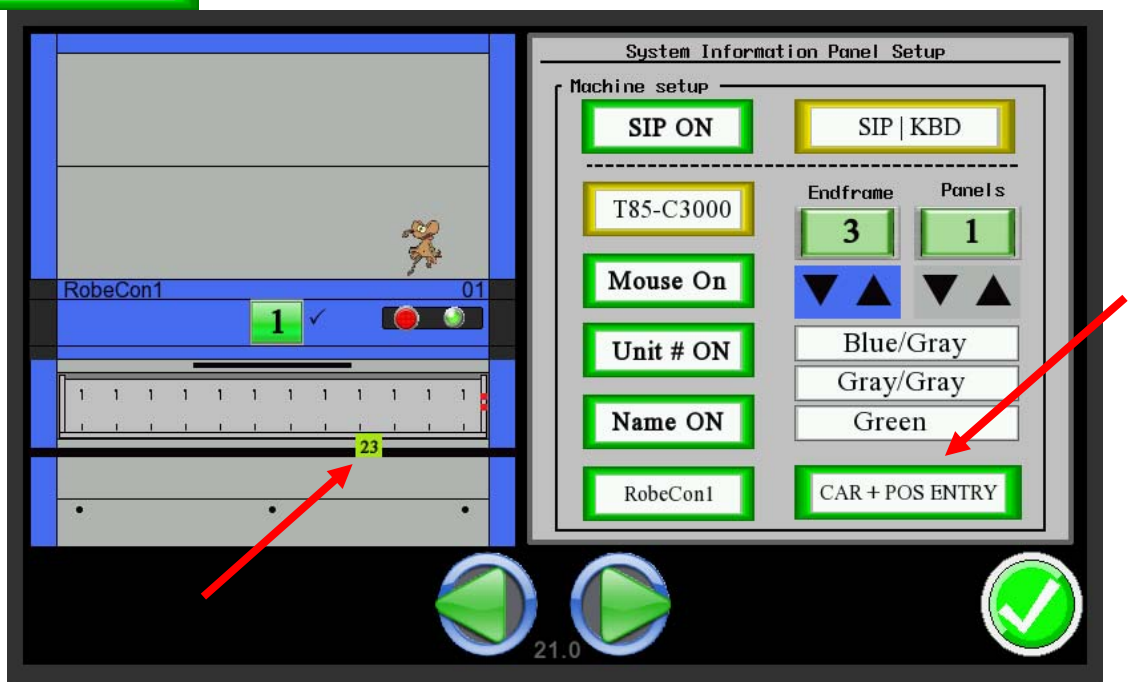
- CAR ENTRY verses CAR+POS ENTRY modes

The SIP can show the approximate location for the POSITION of the product on the carrier level, or it can be set for simple “carrier only” entries. See KEYPAD – SELECTING A CARRIER section for more information.

CAR ENTRY ONLY



CAR + POS ENTRY



[21.1] Touch-panel setup

- Backlight timeout

Touch the backlight timeout field to obtain a pop-up keypad. Define the time (in minutes) to switch off the backlight during periods of inactivity.

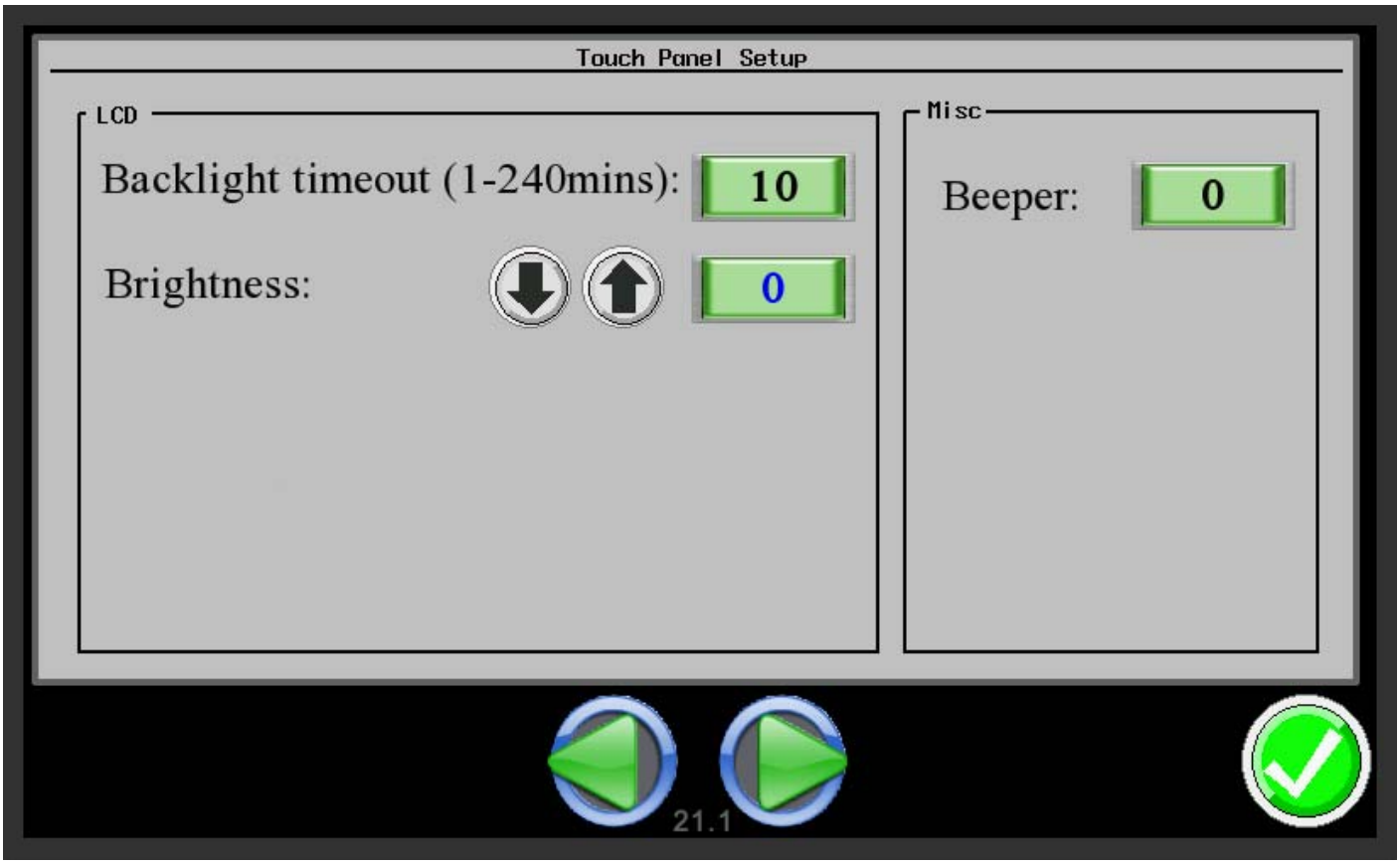
- Brightness for LCD

Touch the Brightness filed and set the desired brightness level for the display.
1 = Dimmest and 32 = Brightest

Touch the beeper

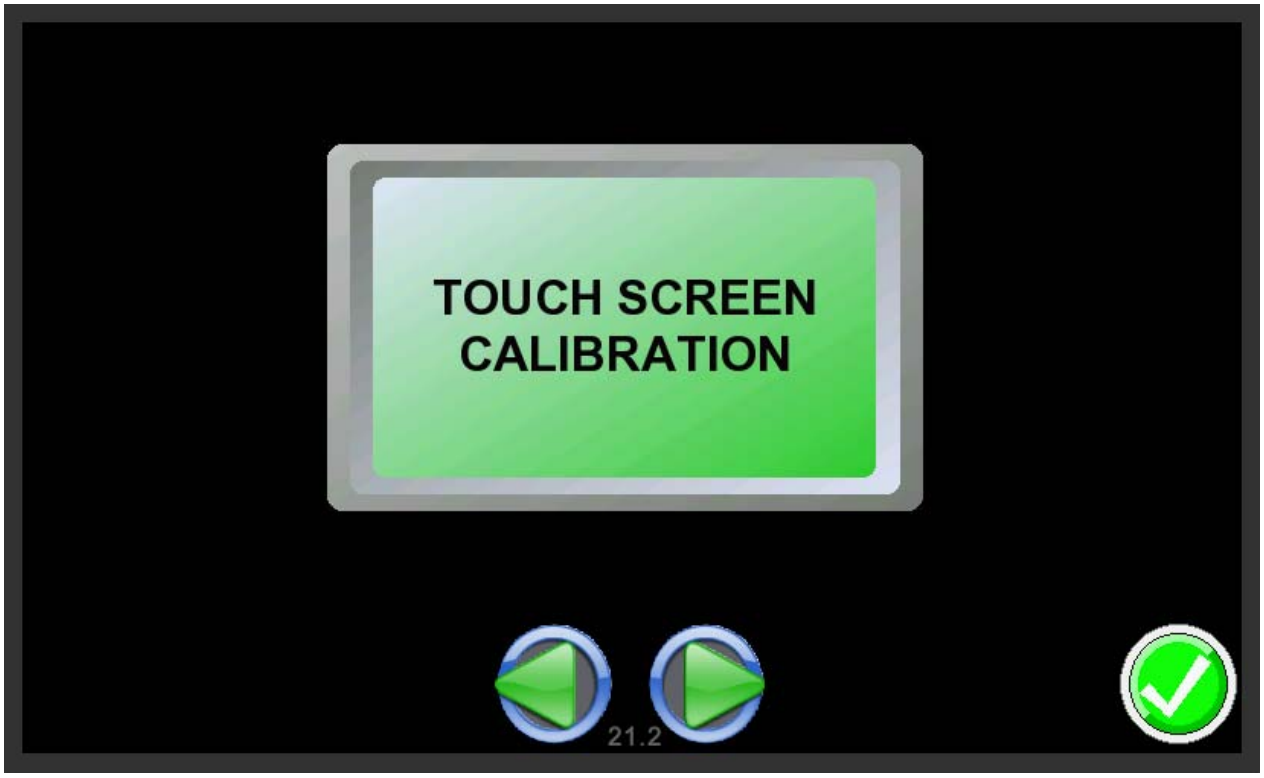
- Beeper control

Touch the beeper field to obtain a pop-up keypad. Define the beeper state off or on as shown below.
0=OFF and 1=ON



- Touch panel calibration

The touch panel grid can be calibrated if necessary.

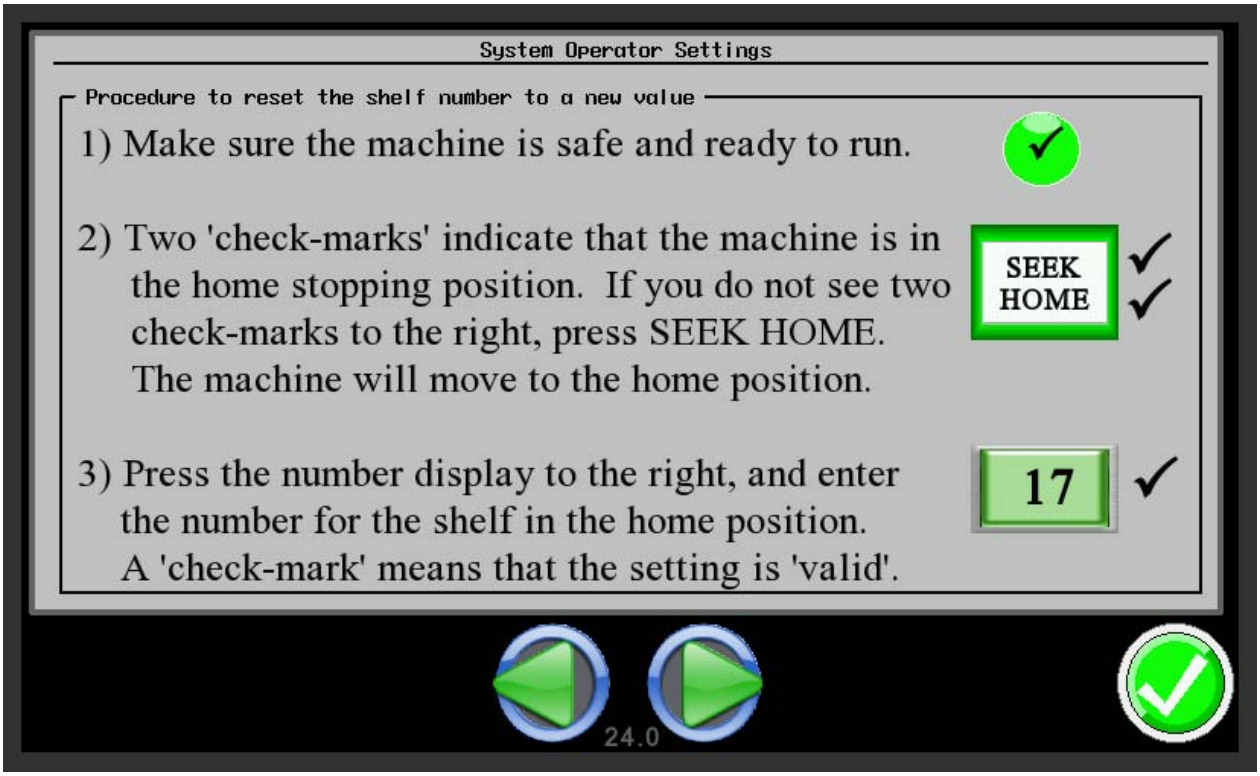


Settings

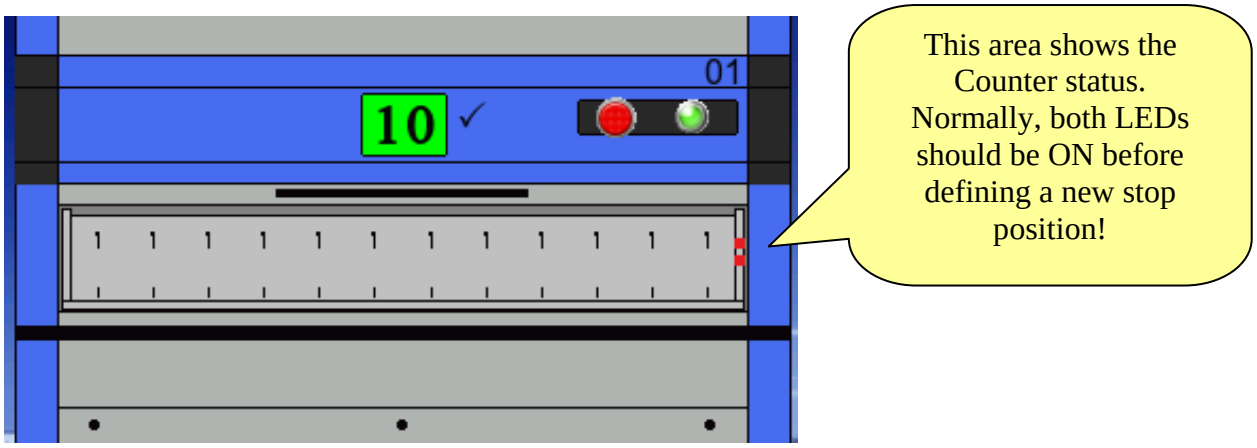
The SETTINGS DISPLAY menu allows the operator to adjust certain operating parameters in the controller, including establishing the home carrier number.

[24.0] System Operator Settings

- Setting the home carrier number



You should set a new carrier number only when the machine is in the proper stop position. Doing otherwise will establish a potentially undesired home position. You can use the two red dots in the SIP to determine when the machine is in the proper stop position, by waiting for both LEDs to be on.



[24.1] Date & Time Settings

- Setting the date and time

Touch the field and enter the new date / time in the format order shown.

About

The ABOUT menu allows the operator to view certain product and supplier related information about the controller.

[22.0] Dealer Service Contact

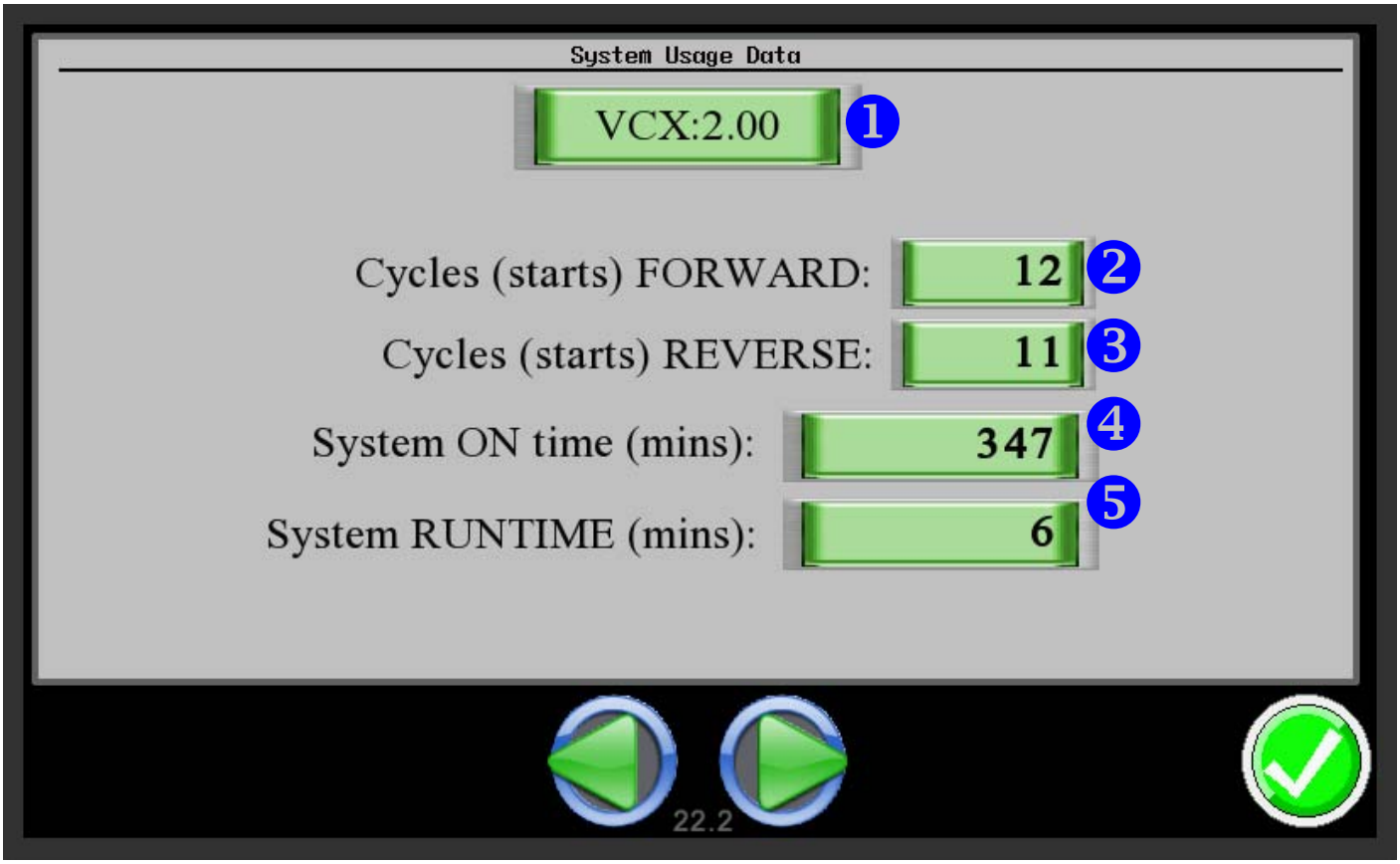
The dealer's name and service contact telephone number should be found here. Dealers, please define this information upon your initial installation.

[22.1] Manufacturer Contact Information

The control manufacturer's contact information can be found here.

[22.2] System Usage Data

The system usage data is shown below:



❶ The VCX field shows the program version number for the Programmable Controller. In this example, it is set as a Vertical Carousel Interface (VCX) with program revision 2.00.

❷ **Cycles FORWARD** indicates the number of times the machine has started up.

❸ **Cycles REVERSE** indicates the number of times the machine has started down.

❹ **System ON time** represents the time (in minutes) that the control power has been on.

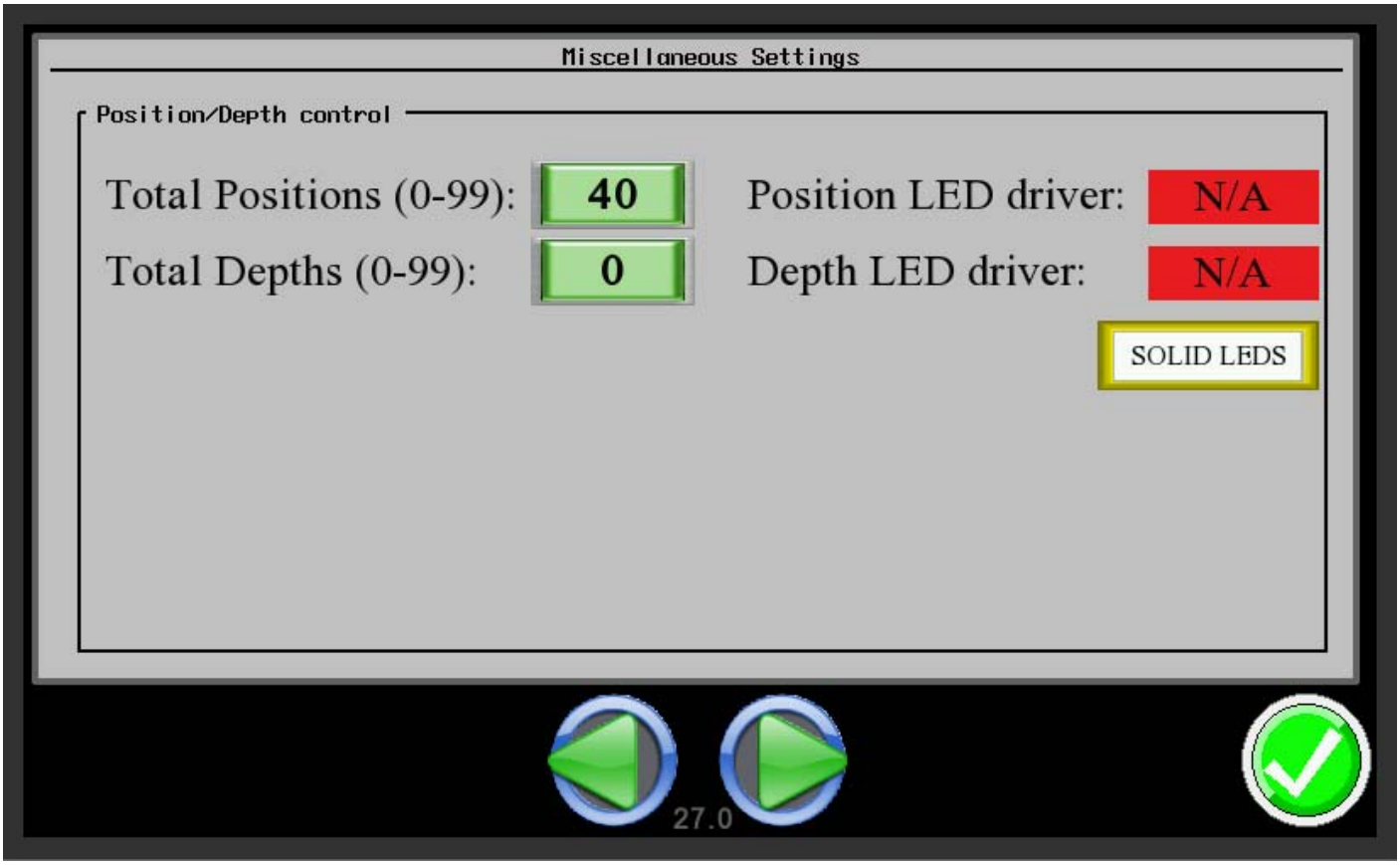
❺ **System Runtime** represents the number of minutes that the machine has been running (with this controller).

The usage statistics can be reset to zero using the Technician SETUP menu 28.9

The MISC menu allows Level 1 password operator (usually the IT professional) to adjust certain operating parameters in the controller, including:

[27.0] Position / Depth control Settings

The number of positions and depths are set here. Some controllers may be equipped with LED drivers to show the position and depth with lights placed in front of the carrier. When those options are installed, the system will indicate that in the shown area.



When the position LED drivers are installed, the system can blink the lights if desired:

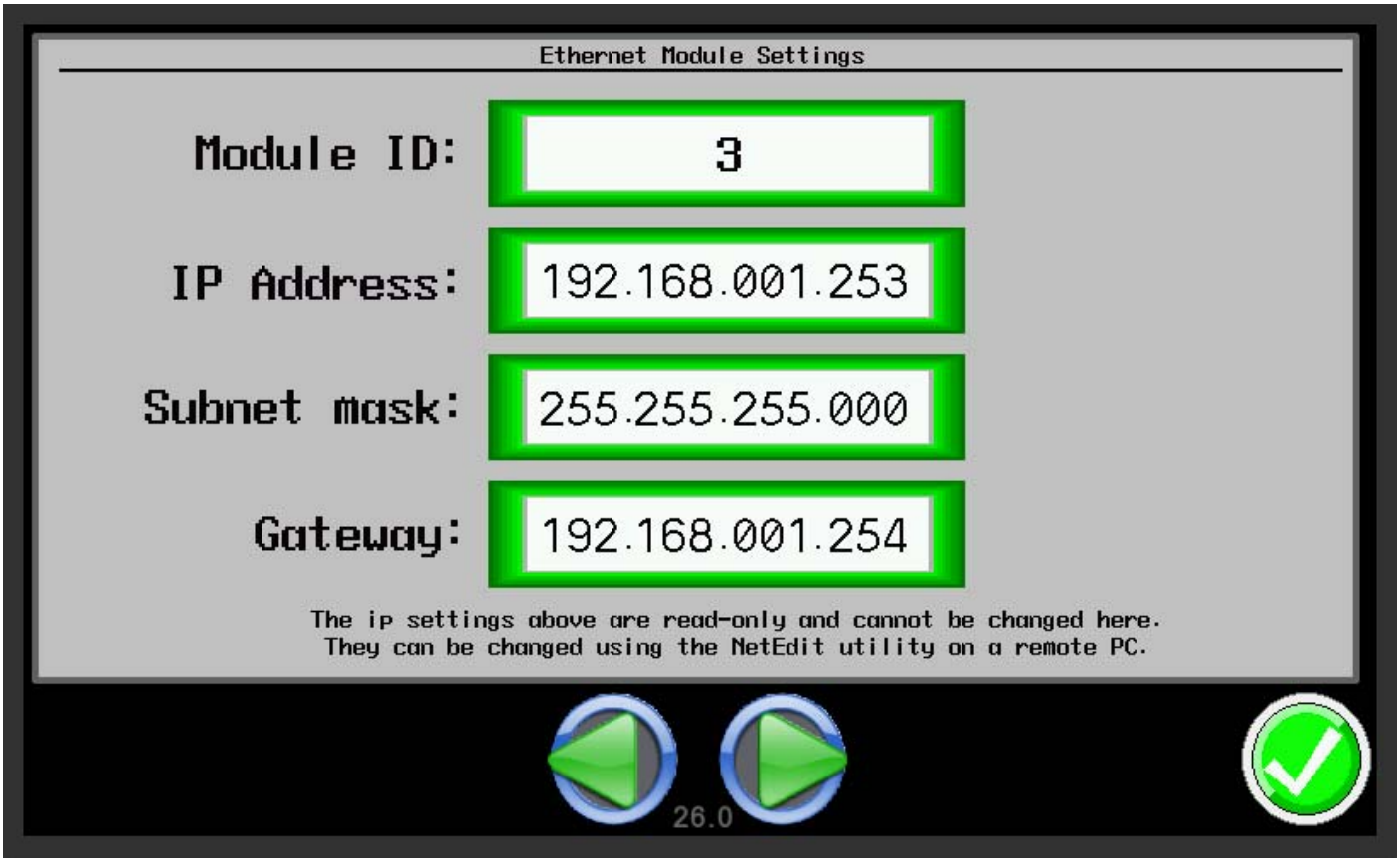
Network

The NETWORK menu allows Level 1 password operators (usually IT administrators) to adjust certain operating parameters in the controller, including:

[26.0] Ethernet Module Settings

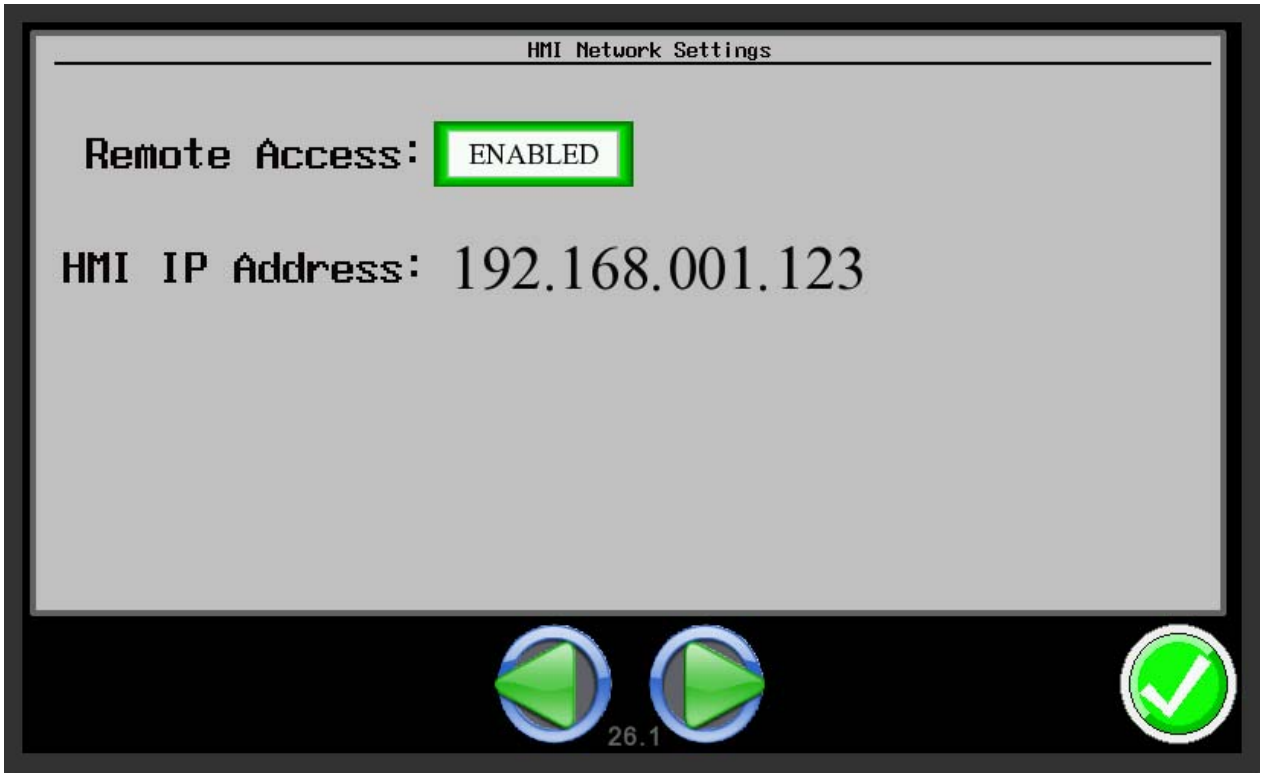
If the optional Ethernet interface module is installed, the system will show the settings on this READ-ONLY screen. These settings cannot be adjusted here; you must use the NETEDIT setup utility from a connected network computer to change these settings.

This interface is typically used for host computers running inventory control software, such as Robey Controls' PartPic system.



[26.1] HMI Ethernet Settings

The OP7 HMI includes an Ethernet port for connection to a remote computer on the network. The IP address can be changed on this setup page.



To enable remote access connections, the “Remote Access” parameter above must be set to ENABLED. Otherwise, all remote connections to the OP7 panel will be rejected.

Remote Access

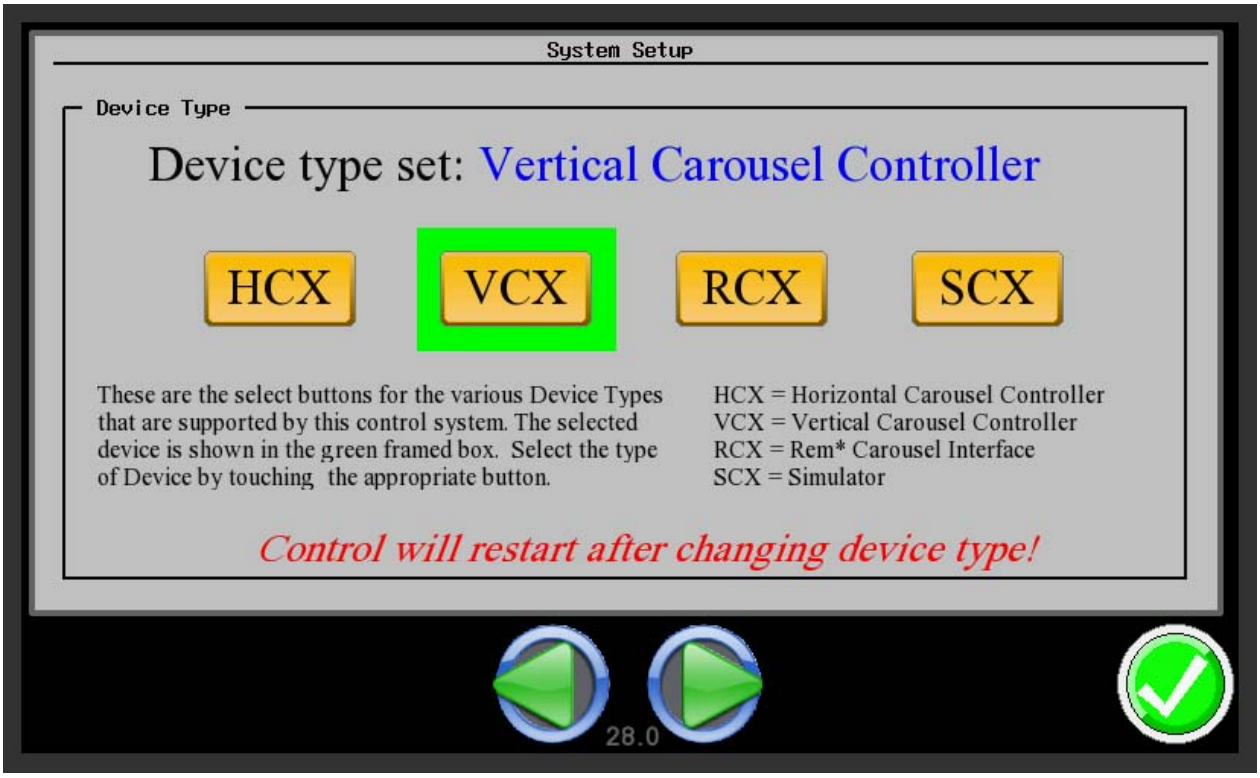
The OP7 can be controlled by an external computer using an application like the Google VNC VIEWER. For more information on that browser, see the information online. The Google VNC Viewer is a free download for a PC and allows the PC screen to mirror the OP7 panel itself, but over a remote connection. Typical uses for this include a full PC beside the machine or in a manager's office, or a remote connection for service and diagnostic purposes.

The Ethernet connection is located on the back of the OP& HMI panel.

Setup

[28.0] SETUP

The System Setup section allows various machine configuration settings to be defined, including the type of machine and amount of positions available.

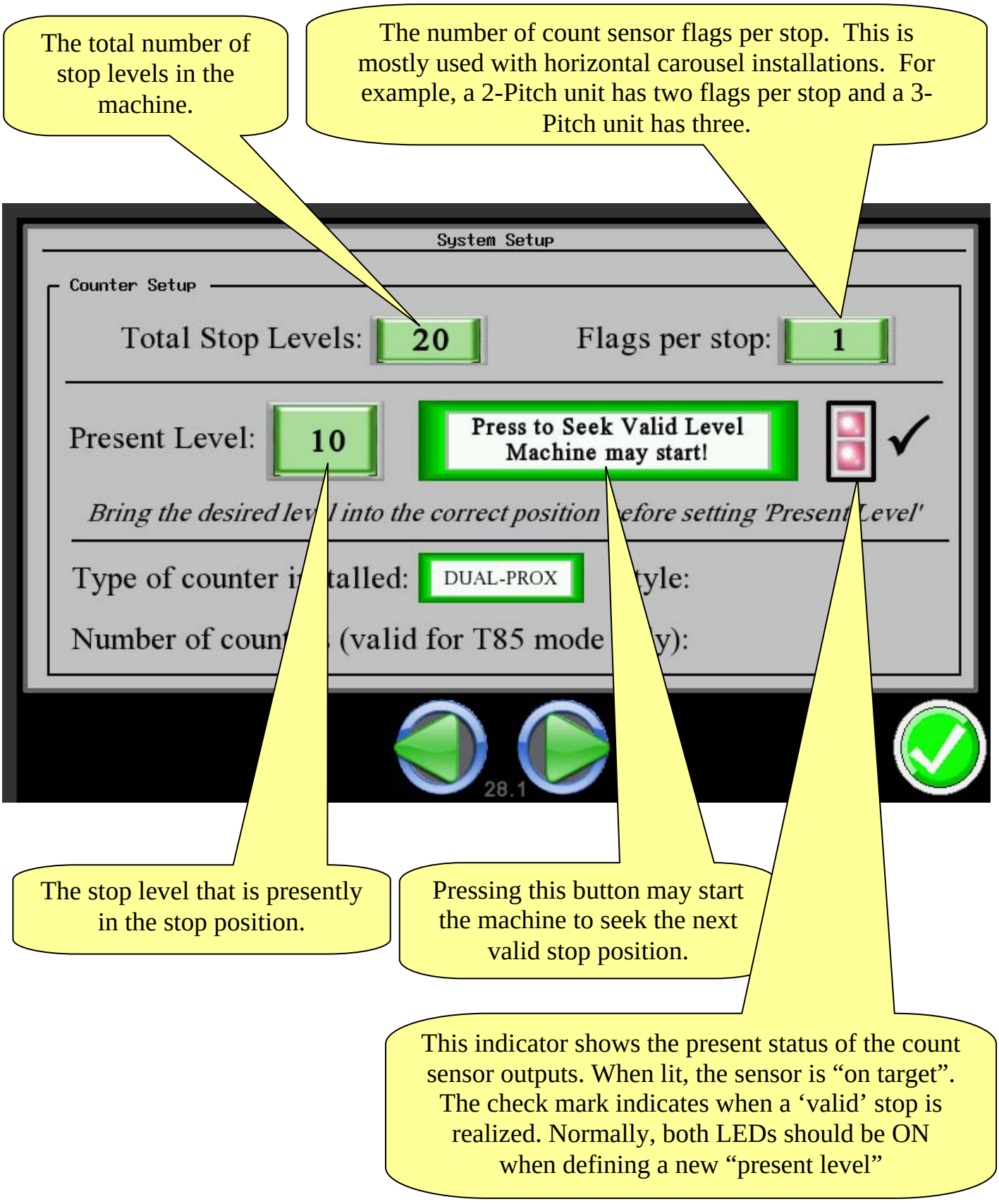


Device Type: Several different Device Types are possible:

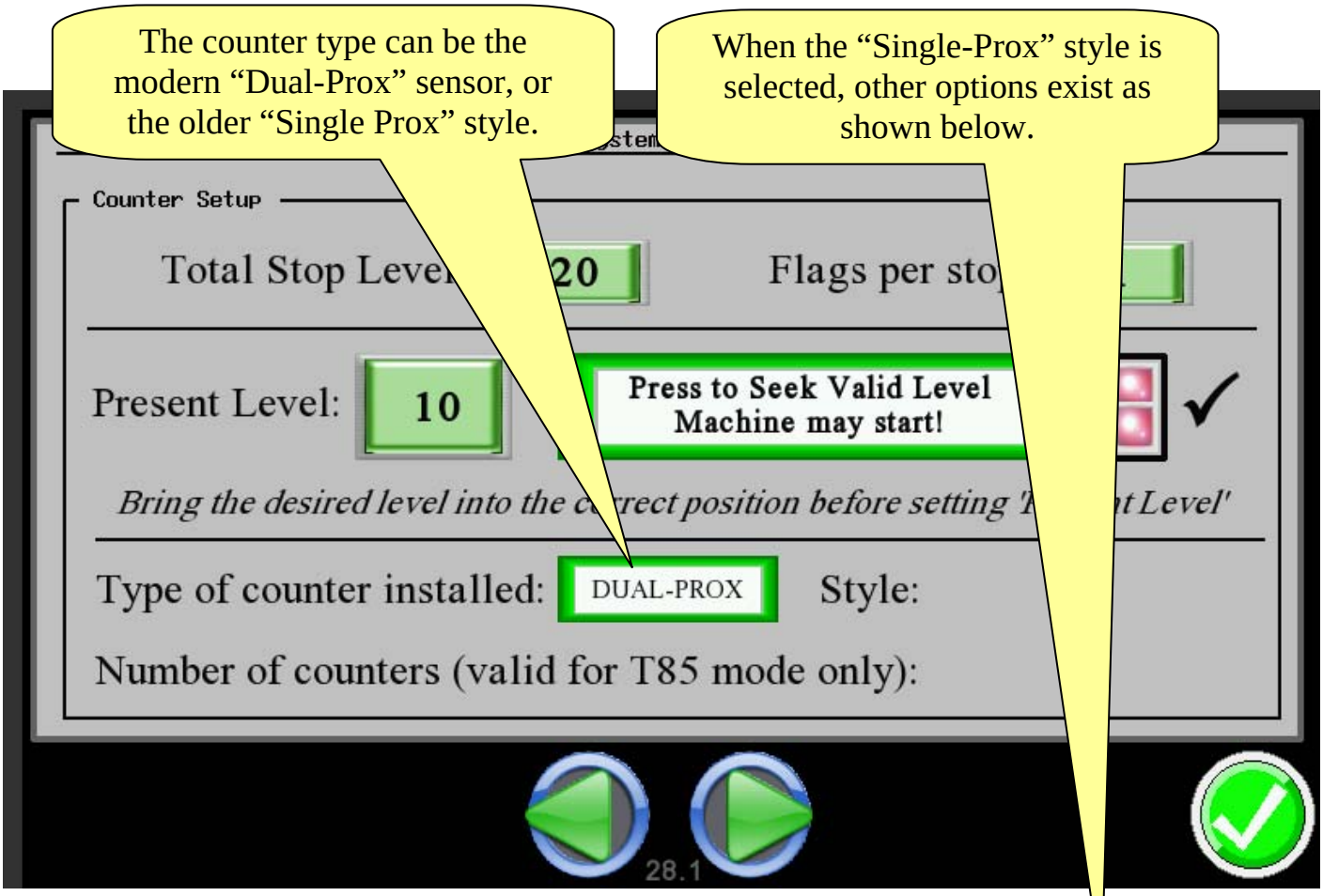
HCX: Horizontal Carousel Interface, used with the complete Horizontal Carousel Controller upgrade
VCX: Vertical Carousel Interface, used with the complete Vertical Carousel Controller upgrade
RCX: Rem* Carousel Interface, used with the Robey Controls replacement board for the Rem* MIF (GS44, GS87, GS140 and GS160)
SCX: Simulate Carousel Interface

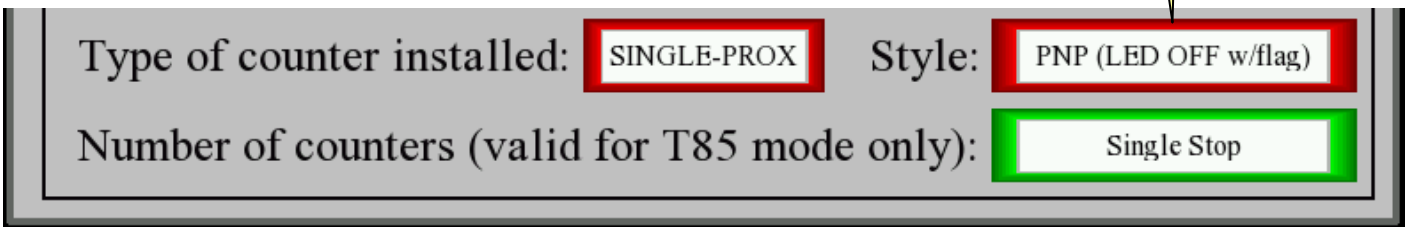
The controller will RESTART after changing the device type!

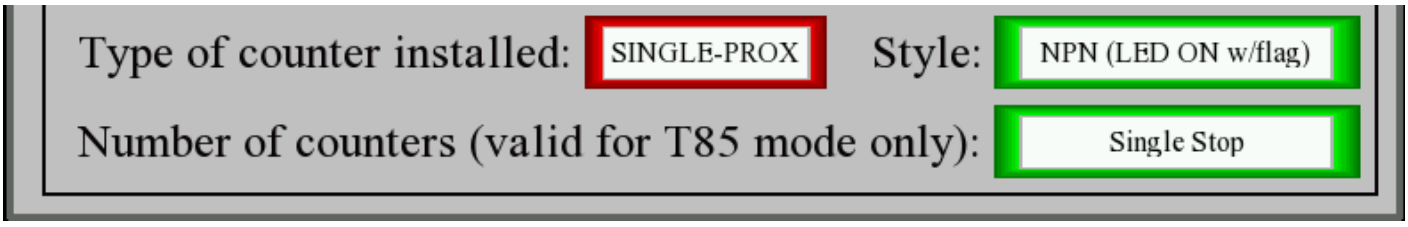
[28.1] Setting the stop level count and defining the level presently in the workstation

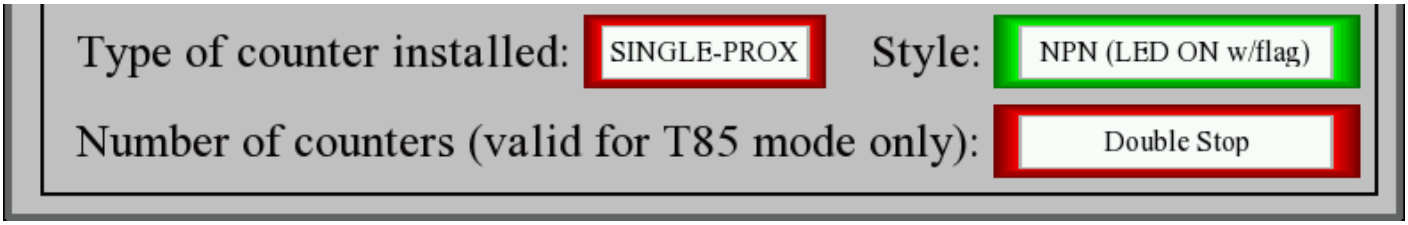


[28.1] Defining the type of count sensor installed in the machine









Styles:

NPN vs PNP:
The older style proximity sensors found on units in the T85 generation used PNP style sensors:

PNP = LED OFF = FLAG SENSE
LED ON = FLAG MISSING

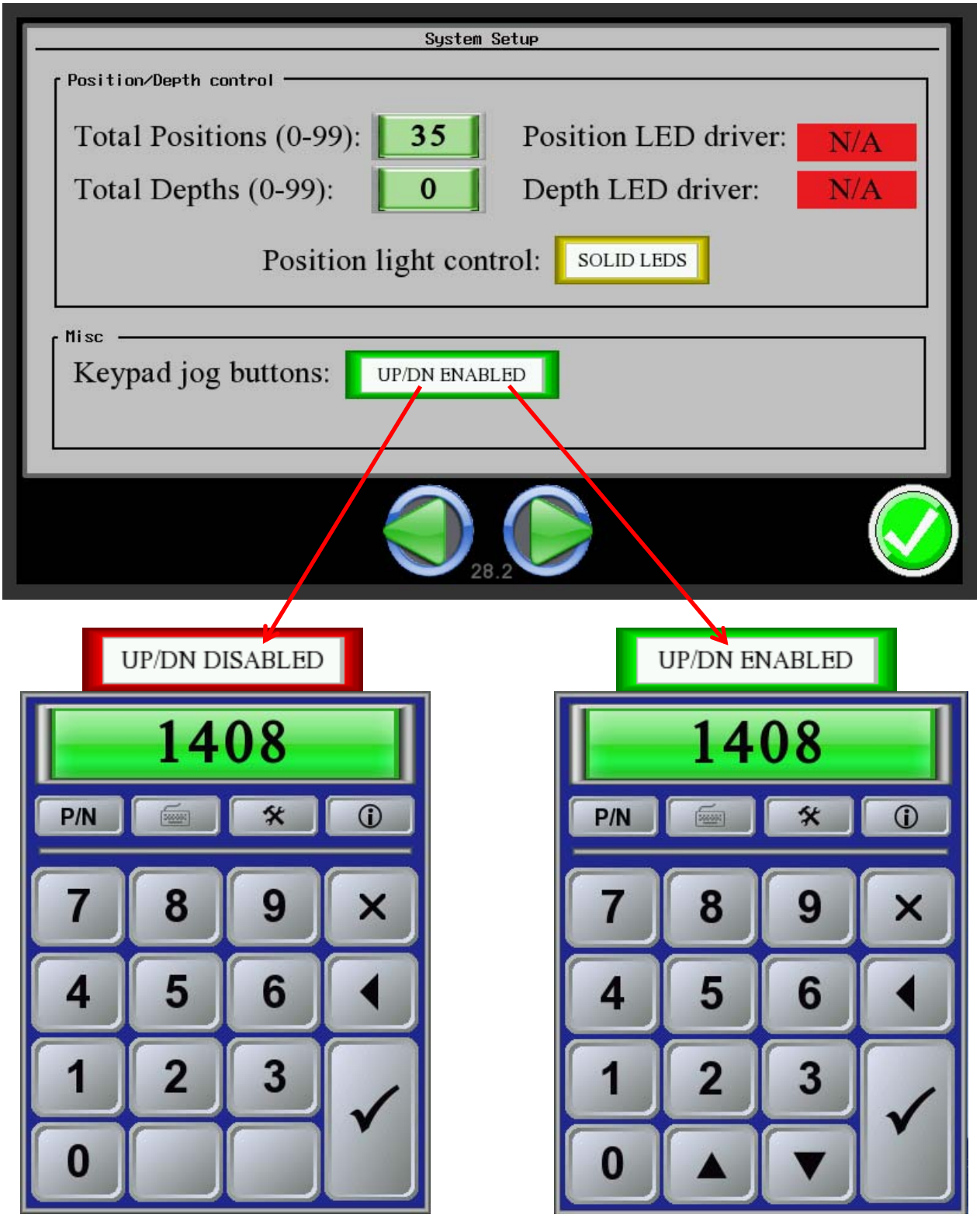
NPN = LED OFF = FLAG MISSING
LED ON = FLAG SENSE

Number of counters:

Single vs Double stop defines if there are two proximity sensors from the T85 generation installed. This setting works primarily with the RCX controller interface.

[28.2] Position lamp drive & Keypad Jog disable

The “Position/Depth control” menu group is used to define the amount of positions desired for the carrier levels, and when the optional POSITION LAMP driver is installed. If the system does not detect the required hardware, N/A will appear in the driver fields as shown below. The SIP will show the approximate positions based on the number installed even without the LED driver hardware.



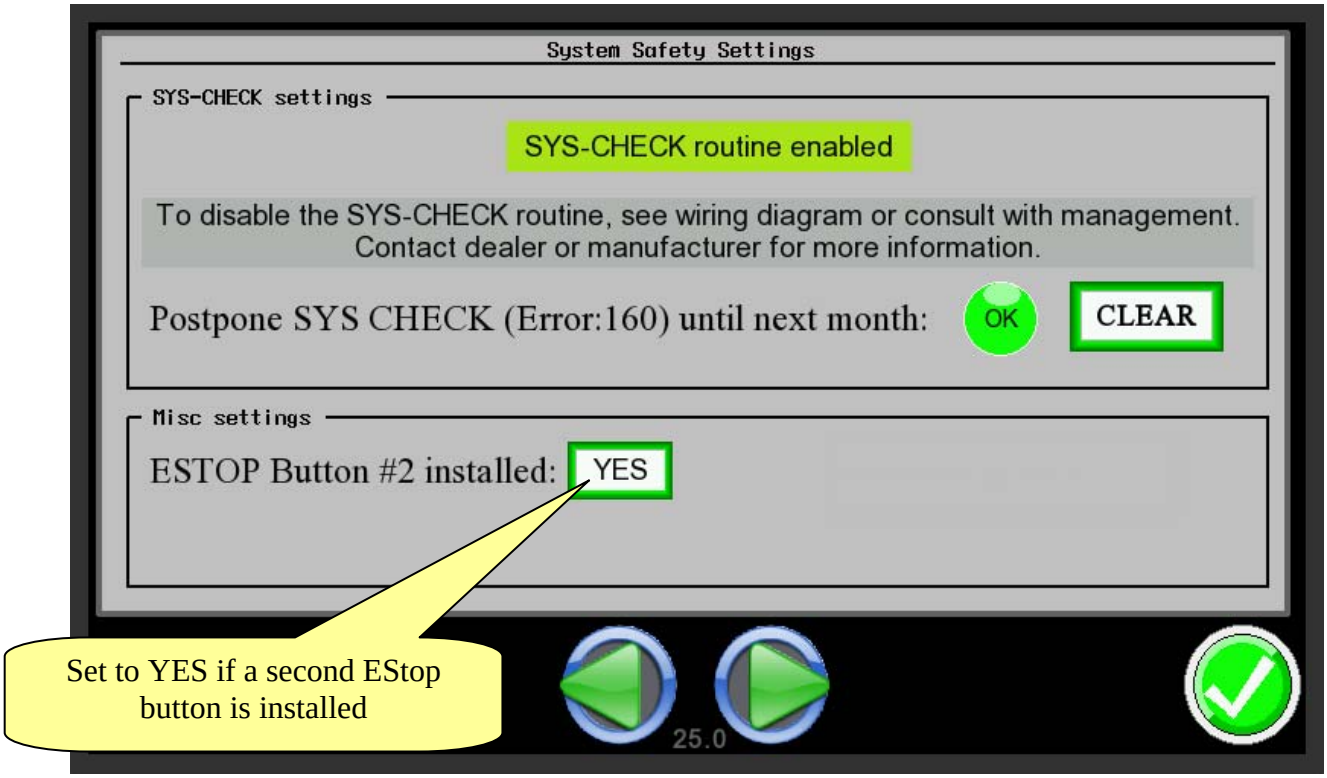
[28.9] Factory Reset

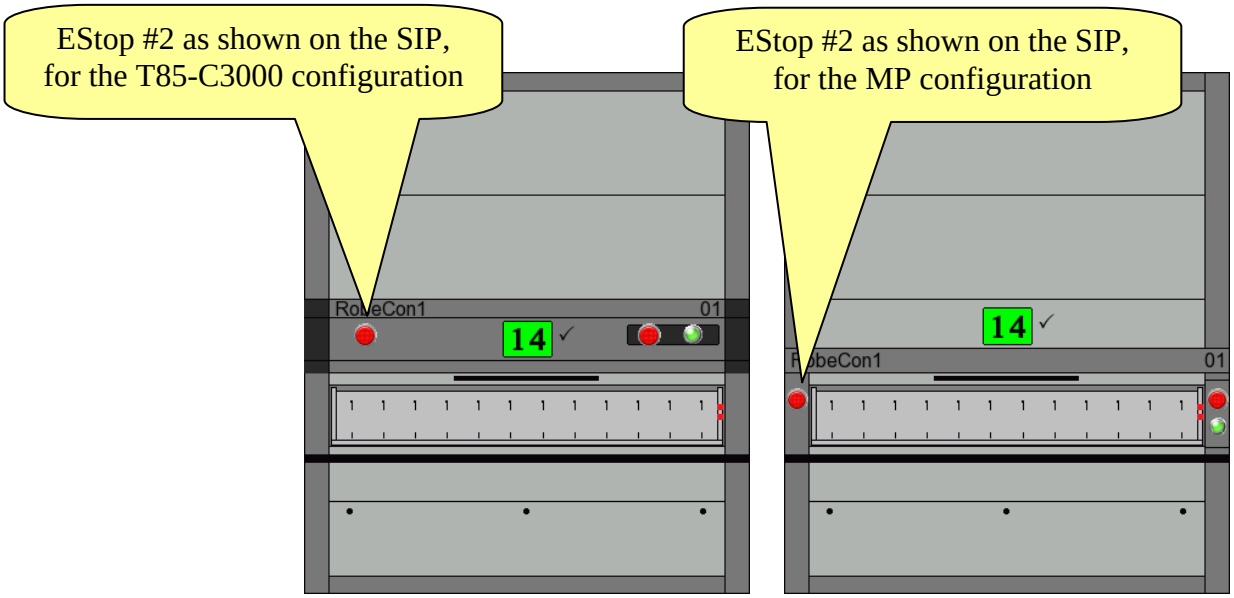
The last page of the Setup menu group allows the technician to reset the entire controller and/or the runtime data back to factory default configurations.

[25.0] SAFETY

ESTOP Button #2

The standard control includes one (1) EStop button located on the button plate described previously in this manual. An additional EStop button is available as an option. When installed, the technician should indicate its existence with the button shown below:



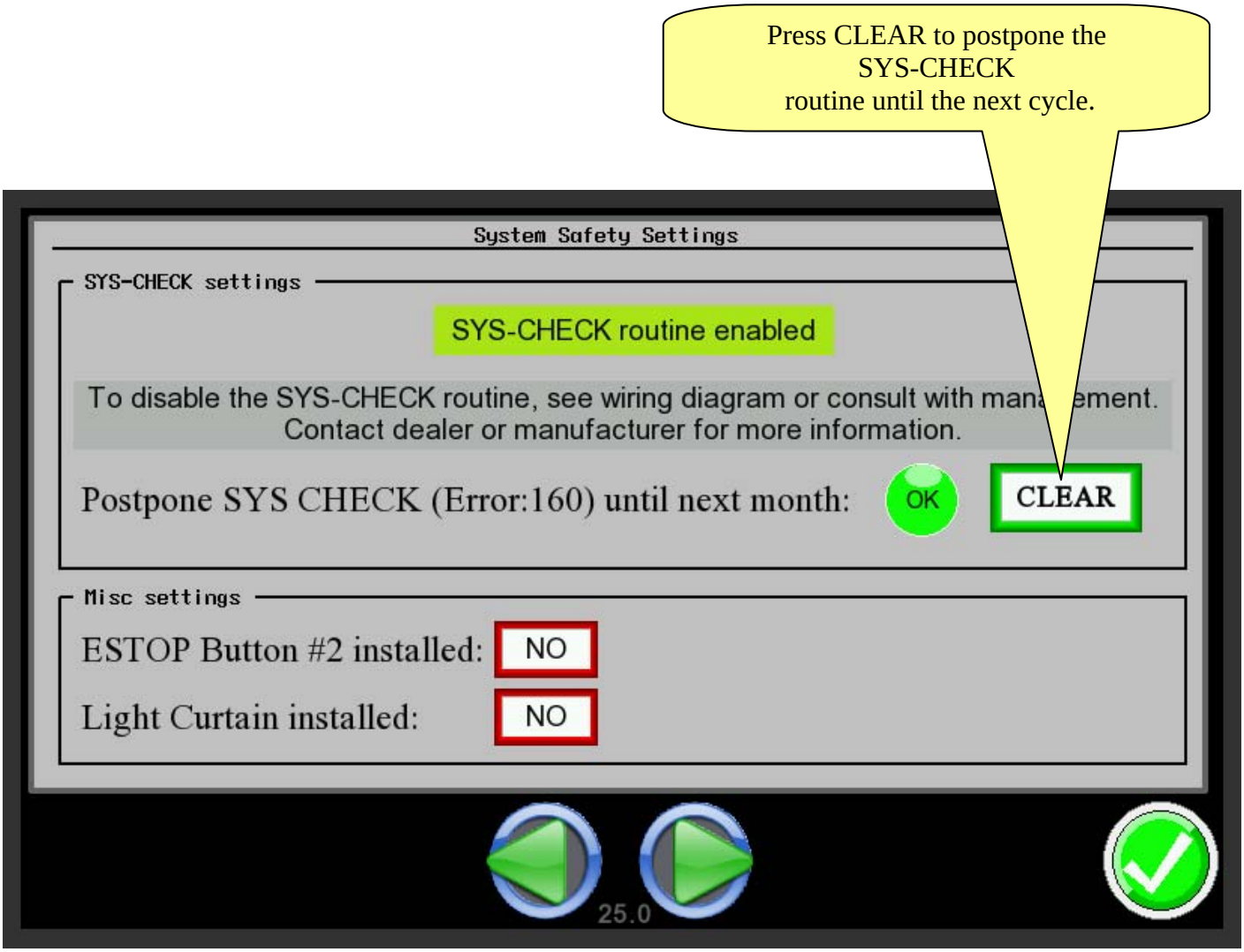


SYS-CHECK

The System Check routine is factory set to be required monthly. If this becomes too inconvenient, and the customer's authority having jurisdiction over workplace safety agrees to cancel this feature, then the requirement can be cancelled.

The SYS-CHECK routine can be either postponed or cancelled altogether when proper authorization is provided.

To postpone the SYS-CHECK until the following month, press the CLEAR button.



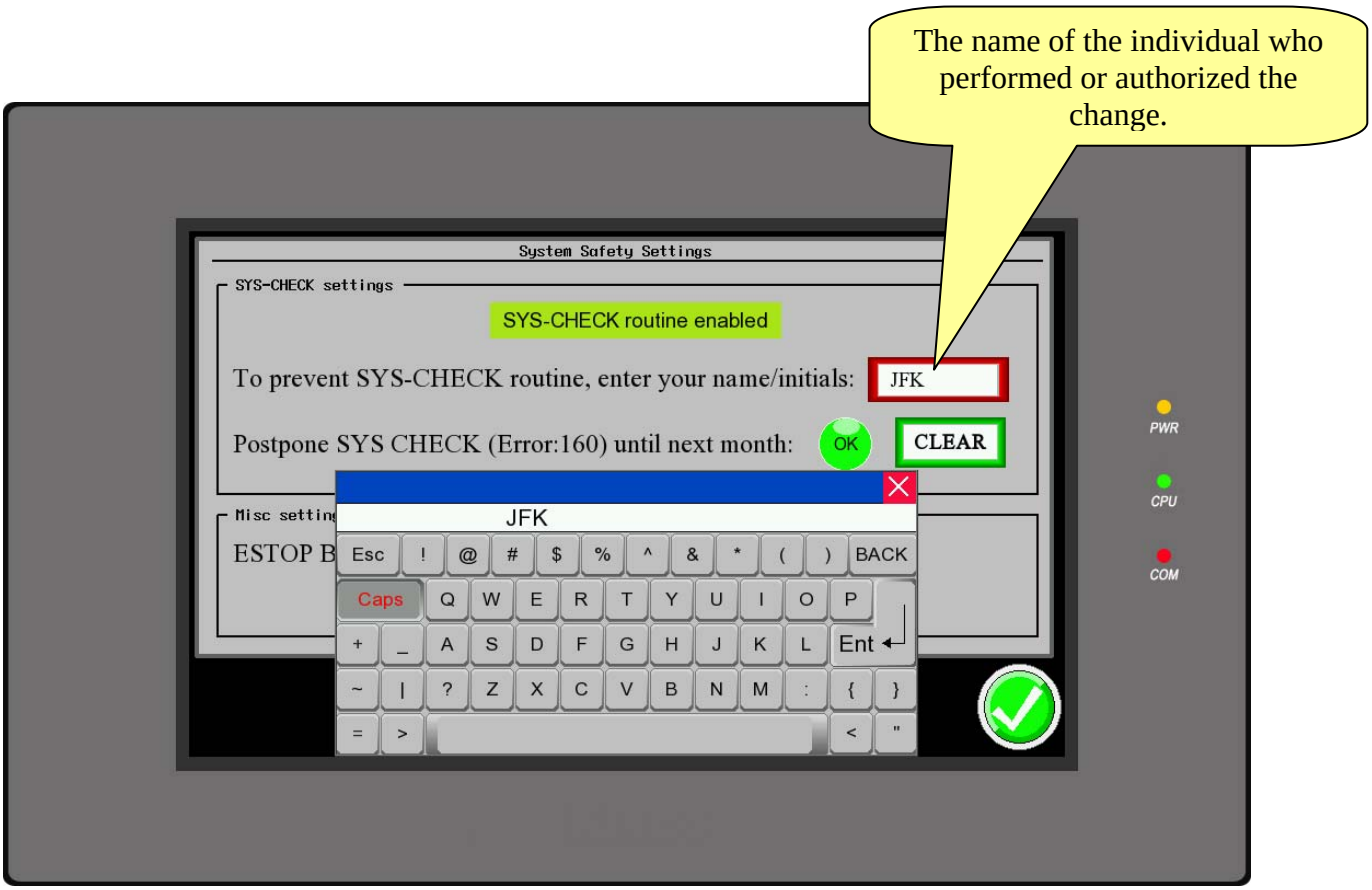
After obtaining permission from the customer's Authority Having Jurisdiction (AHJ), canceling the SYS-CHECK altogether requires two steps.

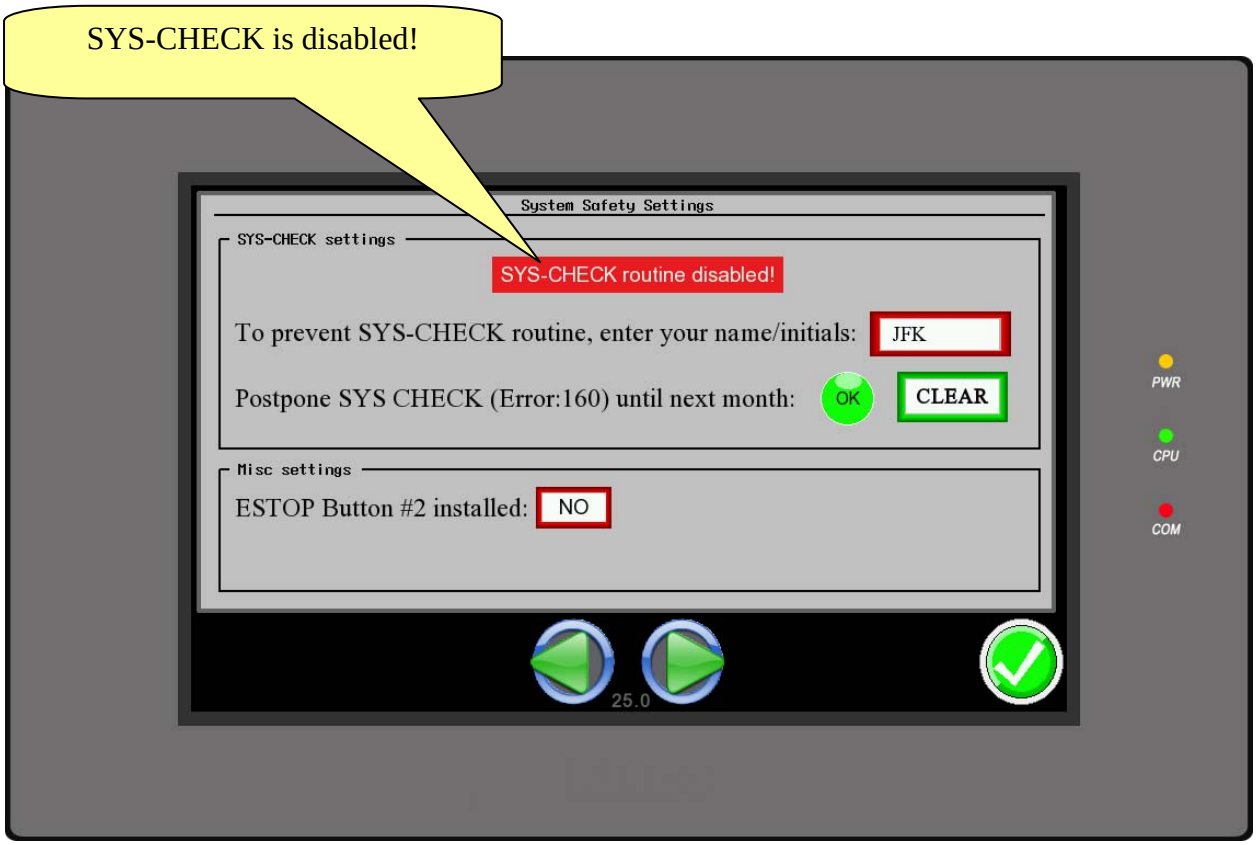
Technician Warning
Please do not execute this procedure on your own as you then take the associated risk. Always seek permission from the customer and authorized management!

To disable the SYS-CHECK routine:

(1) Hardware change: The control's wiring must be changed. A wire must be cut/removed from the control panel. See the control's wiring diagram for further information.

(2) Software change: The control's parameters must be changed. Touch the field and enter the name or initials of the individual authoring the change, as shown on the following page.

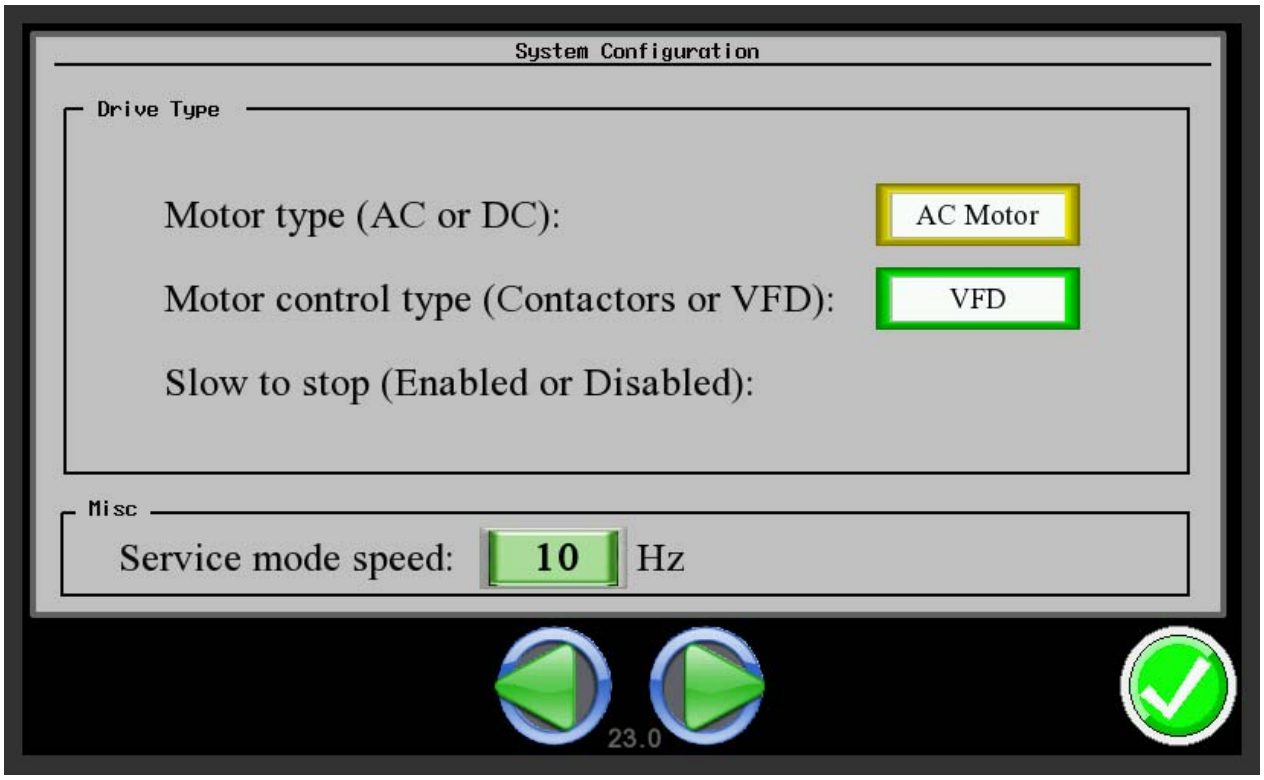

The name of the individual who performed or authorized the change.
System Safety Settings
SYS-CHECK settings
SYS-CHECK routine enabled
To prevent SYS-CHECK routine, enter your name/initials:
JFK
Postpone SYS CHECK (Error:160) until next month:
OK
CLEAR
Misc setting
ESTOP B
JFK
Esc ! @ # $ % ^ & * ( ) BACK
Caps Q W E R T Y U I O P
+ _ A S D F G H J K L Ent
~ | ? Z X C V B N M : { }
= > < "
PWR
CPU
COM


SYS-CHECK is disabled!
System Safety Settings
SYS-CHECK settings
SYS-CHECK routine disabled!
To prevent SYS-CHECK routine, enter your name/initials:
JFK
Postpone SYS CHECK (Error:160) until next month:
OK
CLEAR
Misc settings
ESTOP Button #2 installed:
NO
25.0
PWR
CPU
COM

Motor

[23.0] System Configuration: (AC VFD)

The standard control supports a number of different machine configurations as shown below:



Various motor types including DC and AC are possible. When AC is selected, either SOFT-START or VFD can be selected.

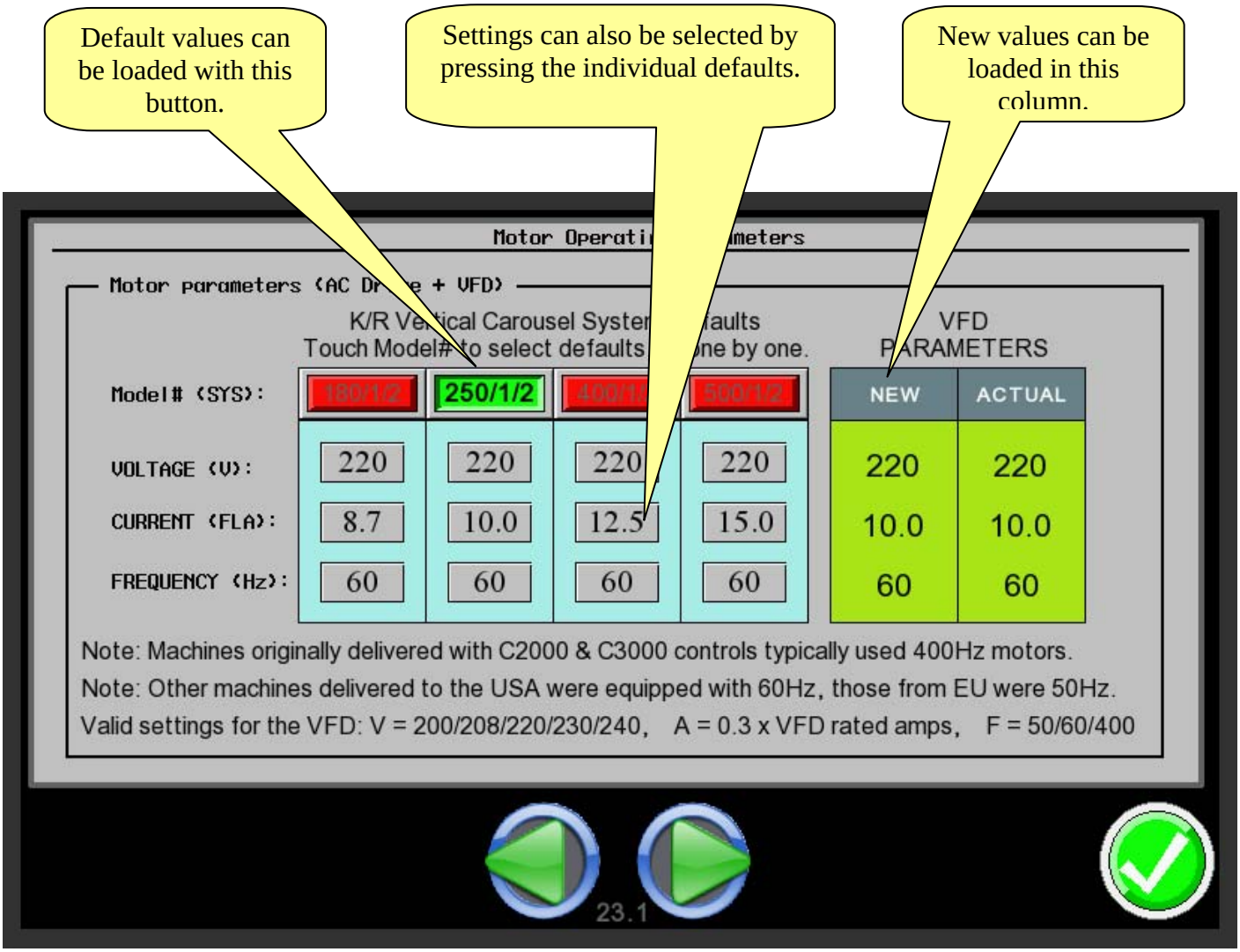
Some systems support a SLOW STOP.

The **Service Mode Speed** is used with the Service Pendant to define the rotation speed of the motor when driving up or down. This is typically used only during installation of the machine's carrier.

[23.1] Motor Operating Parameters (AC VFD)

The Variable Frequency Drive (VFD) has a number of operating parameters that must be set for proper operation and motor protection. Default conditions for typical systems are shown below, but you should always check the motor's data-plate to obtain the exact information for your particular machine.

After the values in the NEW column are changed, the system will attempt to write those values to the VFD. If the values are illegal, it will not be able to perform the write and will show this state in red. In that case, correct the NEW values and/or contact Robey Controls for further information about your control configuration.

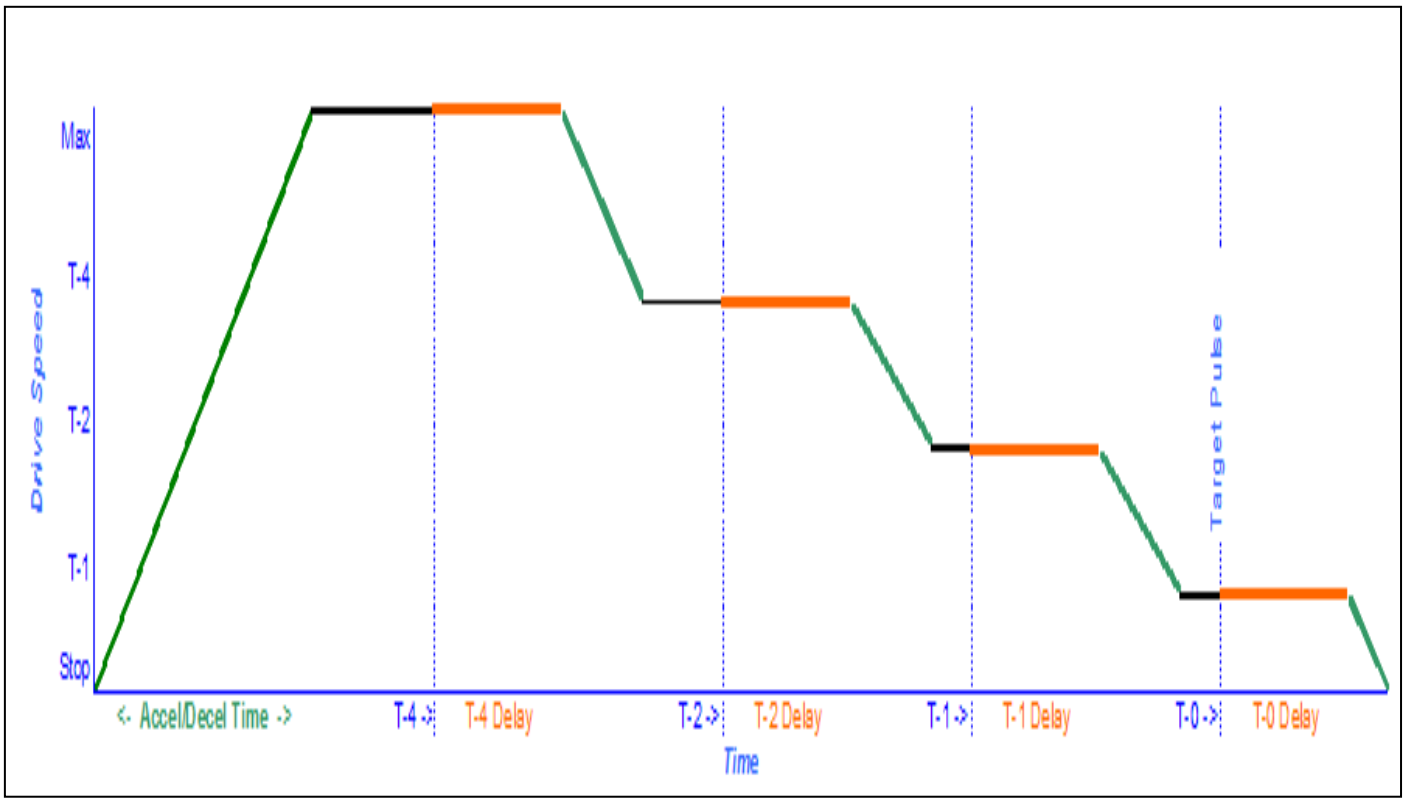


[23.1] Motor Operating Parameters (DC Drive)

The DC drive does not have parameters that can be set, so this page is left blank.

[23.2] Drive Setup

The system has a several adjustments to control motion during the Goto command, as shown below:



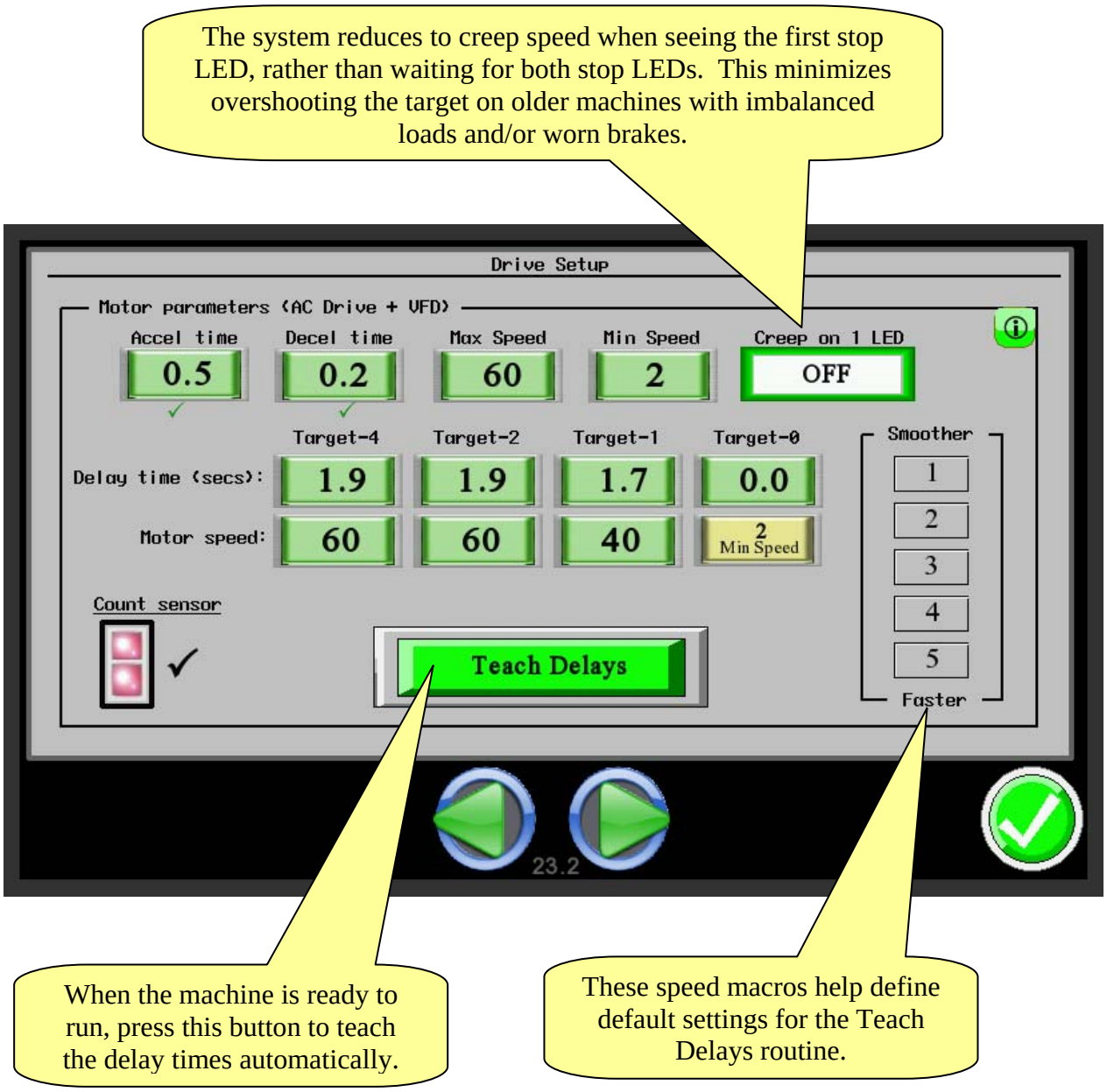
The motor acceleration and deceleration times can be set, along with the maximum speed and other parameters. These settings make special applications with unique conditions possible, but normally default settings can be used.

‘T’ represents ‘Target pulse’, and so T-4 represents 4 flags before reaching the target. The time delays before switching to the next speed can be adjusted, as well as the amount of time delaying after reaching the target.

[23.2] Drive Setup: (AC VFD)

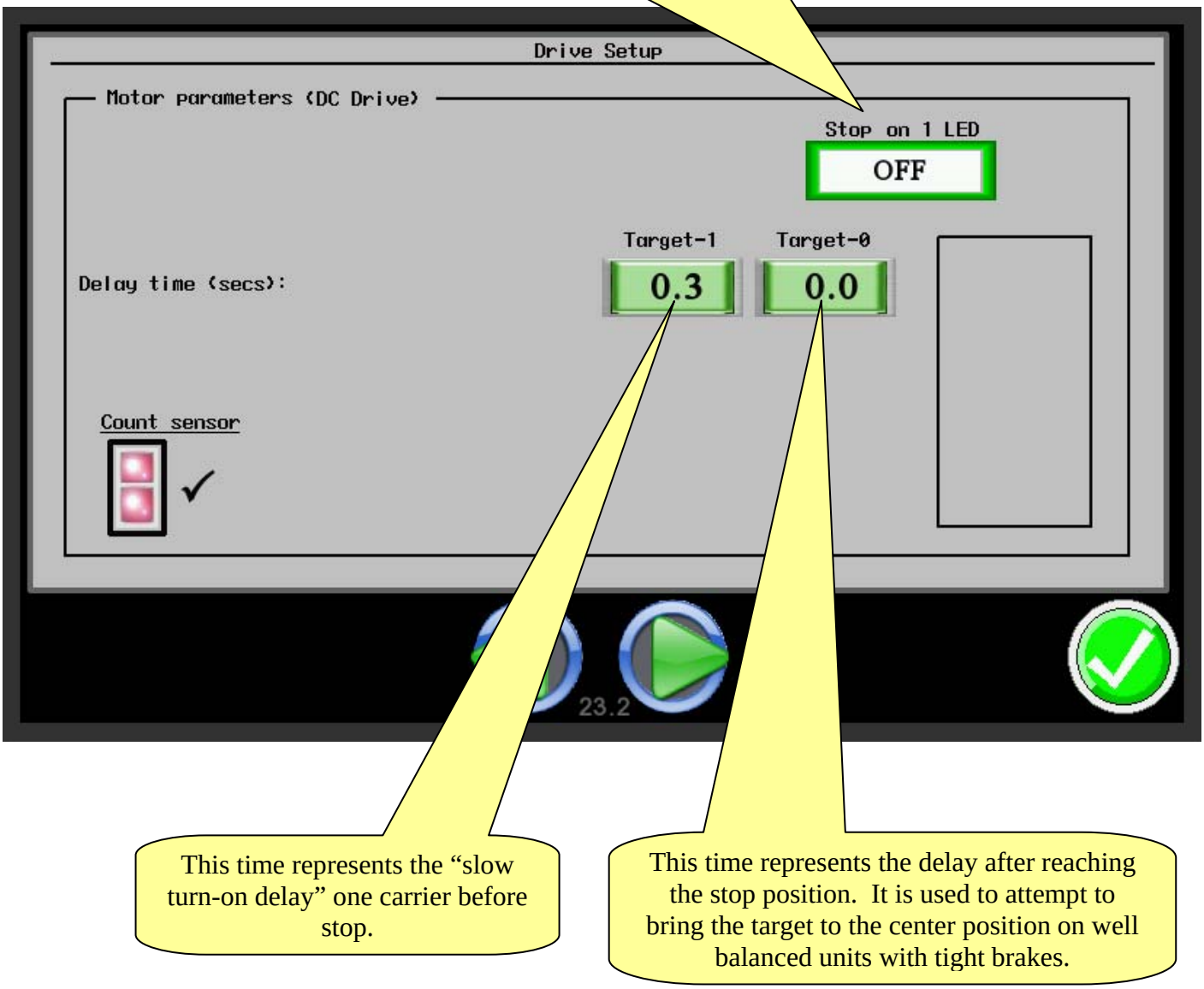
"Speed Macros" are provided to help set the various motor speeds and acceleration parameters for you. Pressing '1' provides the smoothest default settings, while pressing '5' provides the most aggressive. A setting of '5' may cause over-shooting the target stop position depending on the machine's condition (brake and load) and a default of '3' is recommended as a starting place.

After any change to the settings, or on new installations, the "Teach Delays" button will self-learn the Delay times automatically. The checks below the Accel and Decel times represent that the VFD has been updated.



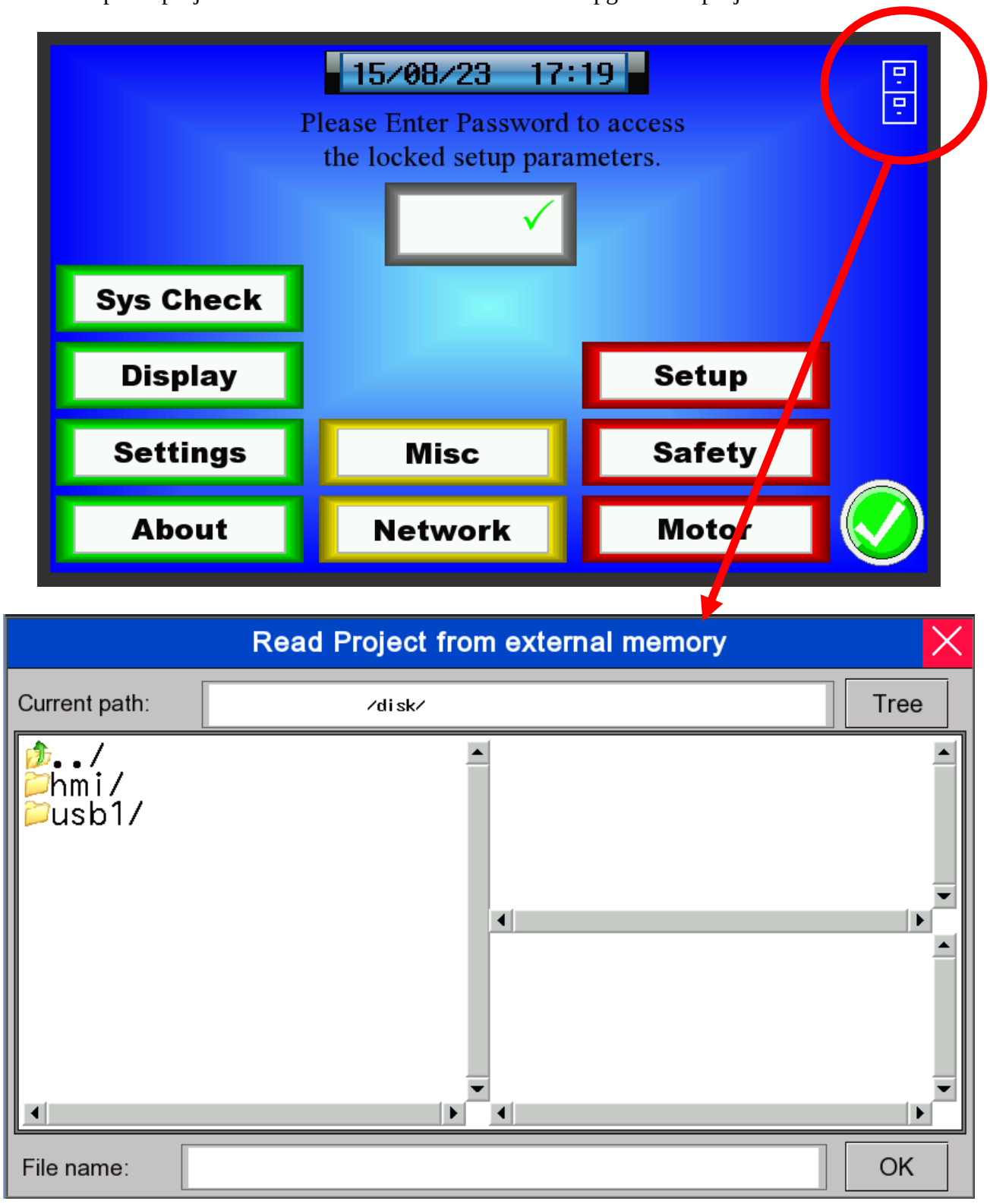
[23.2] Drive Setup: (DC Drive)

The DC drive has fewer adjustable parameters, as shown below:

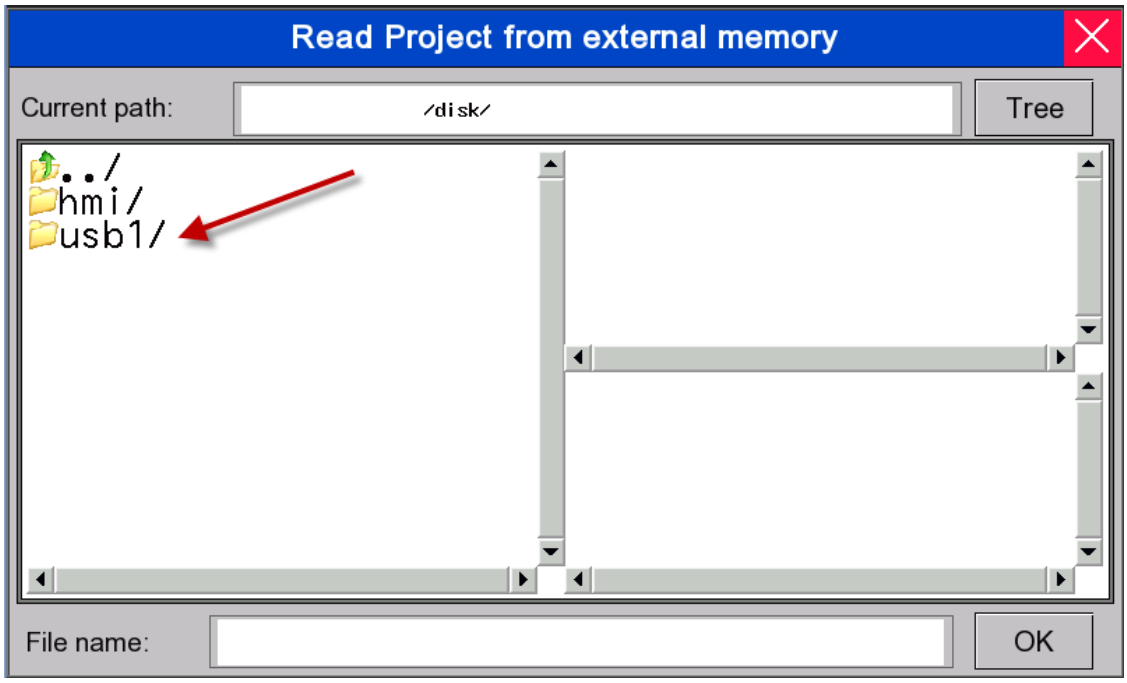


File System – Updating the project running on the Operator Panel

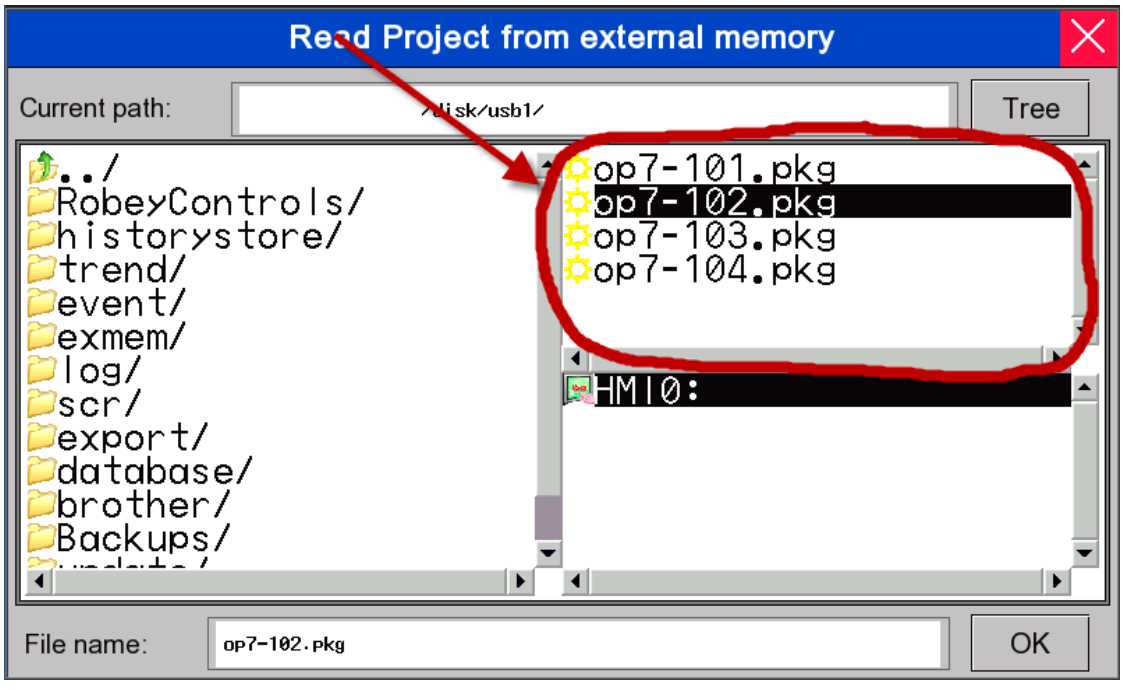
The Operator Panel project can be field upgraded by accessing the FILE SYSTEM menu. When the "technician" password is active, the "File Cabinet" is shown in the upper right of the SETUP menu. You must have an update project loaded on a USB drive available to upgrade the project.



Insert the thumb drive into the rear-bottom USB port labeled USB HOST, located on the back of the OP7 panel. Select the **usb1/** input:



And then choose the desired “pkg” file, and press OK.



Select the update file from the list of possible options, and press ‘OK’ to begin the file transfer. Do not power the system down until the update completes!

System Error Messages

Error #	Error	Description
1	Photocell 1	The beam on carousel #1, left side is interrupted.
2	Photocell 2	The beam on carousel #1, right side is interrupted.
3	Photocell 3	The beam on carousel #2, left side is interrupted.
4	Photocell 4	The beam on carousel #2, right side is interrupted.
5	Photocell 5	The beam on carousel #3, left side is interrupted.
6	Photocell 6	The beam on carousel #3, right side is interrupted.
7	Photocell 7	The beam on carousel #4, left side is interrupted.
8	Photocell 8	The beam on carousel #4, right side is interrupted.
20	Out of range...	The value entered is not in the valid range for this device.
21	Wrong travel direction	The machine appears to be traveling incorrectly. Contact maintenance.
30	Run timeout	The machine ran for too long without stopping. Contact maintenance.
31	Count timeout	The machine ran for too long without seeing a counter. Contact maintenance.
39	PLC Battery low warning	The battery in the controller is low. Contact maintenance.
40	VFD Over Current	The motor controller sensed too much current. Contact maintenance.
41	VFD Over Voltage	The motor controller sensed too much voltage. Contact maintenance.
42	VFD Over Temp	The motor controller is too hot. Contact maintenance.
43	VFD Overload	The motor controller is overload. Contact maintenance.
44	VFD Overload 1	The motor controller is overload. Contact maintenance.
45	VFD Overload 2	The motor controller is overload. Contact maintenance.
46	VFD stopped	The motor controller has a problem. Contact maintenance.
47	VFD CPU Failure 1	The motor controller has a problem. Contact maintenance.
48	VFD CPU Failure 2	The motor controller has a problem. Contact maintenance.
49	VFD CPU failure 3	The motor controller has a problem. Contact maintenance.
50	VFD H/W Protection Failure	The motor controller has a problem. Contact maintenance.
51	VFD Overcurrent Accel	The motor controller required too much current while starting. Contact maintenance.
52	VFD Overcurrent Decel	The motor controller required too much current while stopping. Contact maintenance.
53	VFD Overcurrent idle	The motor controller required too much current while idle. Contact maintenance.
54	VFD Ground Fault	The motor controller has a problem. Contact maintenance.
55	VFD Low Voltage	The motor controller has insufficient incoming voltage. Contact maintenance.
56	VFD 3~ Power Loss	The motor controller does not detect all phases of power. Contact maintenance.
57	VFD Ext'l base block	The motor controller has a problem. Contact maintenance.
58	VFD Auto adjust (cFA) failure	The motor controller has a problem. Contact maintenance.
59	VFD S/W protection	The motor controller has a problem. Contact maintenance.
60	VFD interface?	The motor controller cannot be found. Contact maintenance.
70	E-Stop button?	The Emergency stop button appears to be pressed. Twist to release it when ready.
101	Photocell 1	The beam on the carousel top is interrupted.
102	Photocell 2	The beam on the carousel bottom is interrupted.
103	Photocell 3	The beam on the carousel ( ) is interrupted.
104	Photocell 4	The beam on the carousel ( ) is interrupted.
120	Out of range...	The value entered is not in the valid range
130	Door Left	The left side of the sliding door is out of position
131	Door Right	The right side of the sliding door is out of position
132	Access Panel	The lower service panel is not closed properly
133	Hand Crank	The access area for the motor hand-crank is not secured.

134	EStop Button	The Emergency stop button #1 appears to be pressed. Twist to release.
135	EStop Button 2	The Emergency stop button #2 appears to be pressed. Twist to release. Check VSX:X6 if Button #2 does not exist.
136	Check VSX:X7	Special Input #7 ( ) appears to be violated.
137	Check VSX:X8	Special Input #8 ( ) appears to be violated.
138	Check motor temp/overload	The motor appears to be too hot, or the over-current sensor has tripped. Call maintenance.
139	Check motor temp	The motor appears to be too hot. Call maintenance.
140	Light Curtain	The Light Curtain seems to be tripped. Clear obstruction and press reset.
141	Light Curtain K2	The Light curtain has a redundancy error. Cycle power or call maintenance.
142	Light Curtain K1	The Light curtain has a redundancy error. Cycle power or call maintenance.
144	SoftStart failure	The motor starter has failed. Call maintenance
145	K1 Contactor fail	Safety contactor not operating correctly. Contact maintenance.
146	K2 Contactor fail	Safety contactor not operating correctly. Contact maintenance.
147	K3 Contactor fail	DOWN contactor not operating correctly
148	K4 Contactor fail	Brake contactor not operating correctly
149	PLC Battery low	The battery in the controller is low. Contact maintenance.
150	Press RESET	Press the Green RESET button to activate safety system
151	VSX Module?	The Vertical Safety Interface module can not be found. Call maintenance
152	Drive Hot, Stand by…	The motor controller is too hot and is cooling down, stand by until it resets.
153	Stop resistor?	The dynamic braking resistor (big green resistor) is not detected.
154	VFD Faulted	The Variable Frequency Drive indicates a fault.
155	24V Power Supply?	The power supply in the controller is not detected.
156	Door not ready	The door is not open, or neither side is in the proper run position.
157	SRM?	The Safety Relay Module is not detected.
158	System Startup	The system has restarted and requires the Green Reset button to be pressed, after confirming that the machine is safe to operate, including checking the surrounding area. Make sure that maintenance is not working inside the unit.
160	Safety Check Due Now!	The SYS-CHECK routine must now be performed. See 'SYS-CHECK' description elsewhere in this manual
161	VFD Motor parameters do not match	The parameter settings for the Motor data between the setup page and the actual VFD do not match. Call for service
162	VFD Ramp parameters do not match	The parameter settings for the Motor accel & decel rates between the setup page and the actual VFD do not match. Call for service
163	VFD Not Found	The Motor control can not be detected. Call for service.
198	PLC Initialized	The controller has been set to factory defaults.
199	System start	The controller has been started.

Notes

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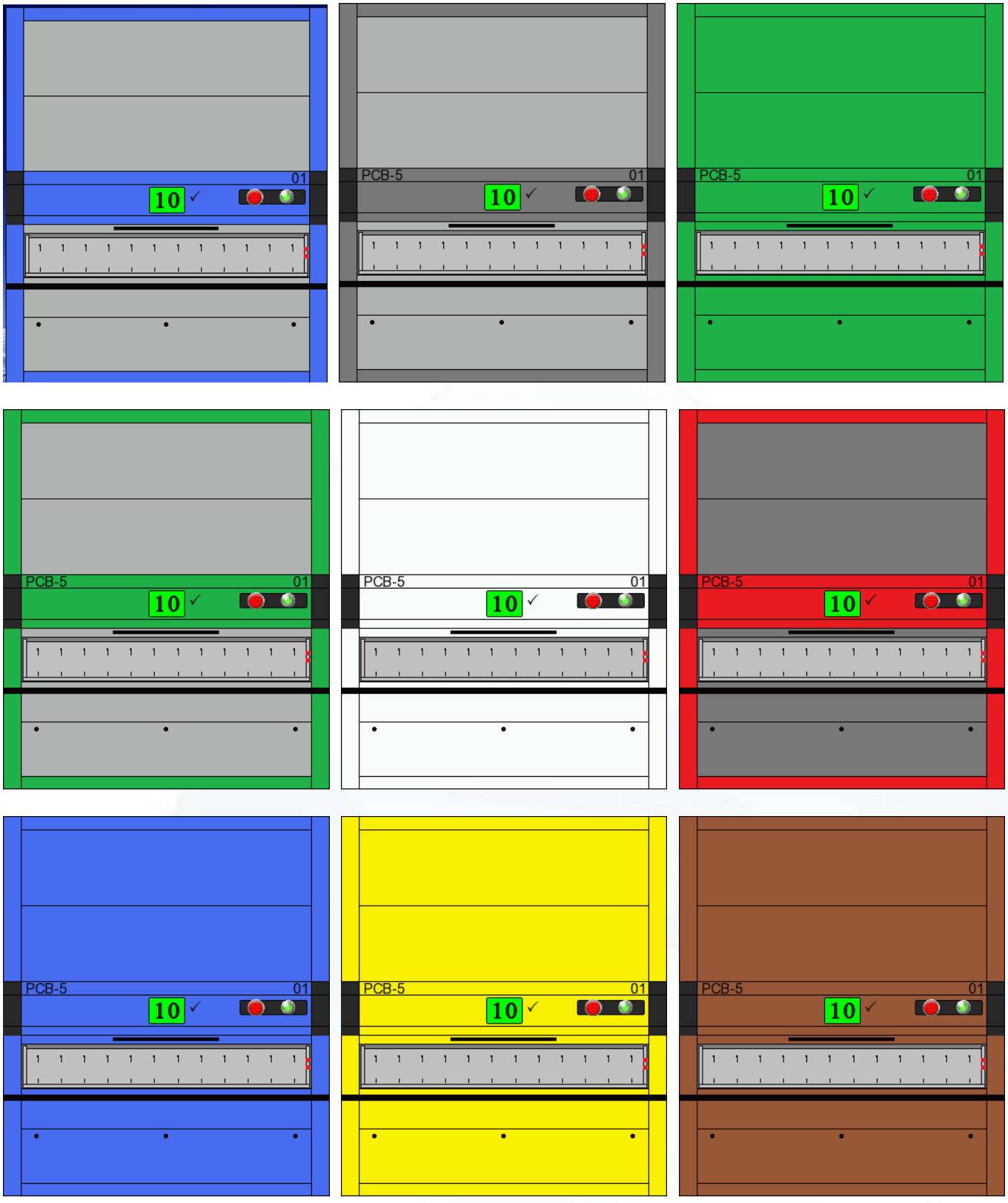

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