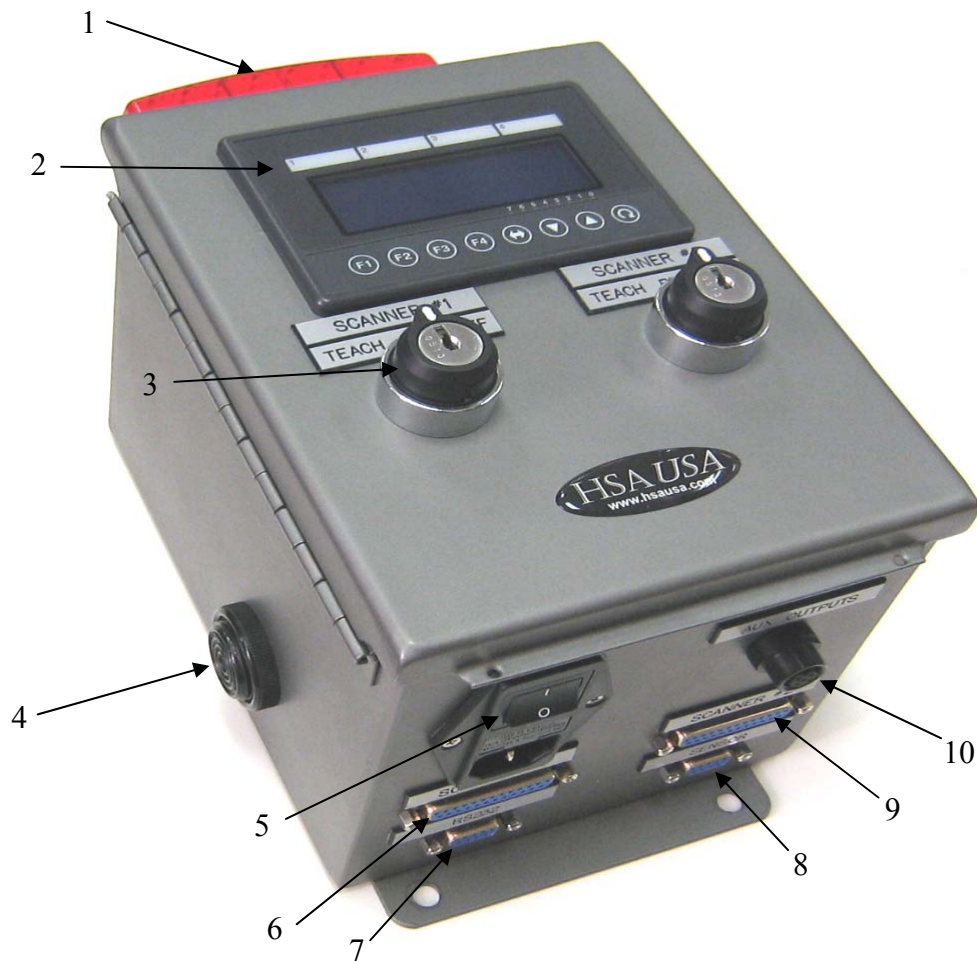# BARCODE SCANNER CONTROLLER
Set-up and installation instructions
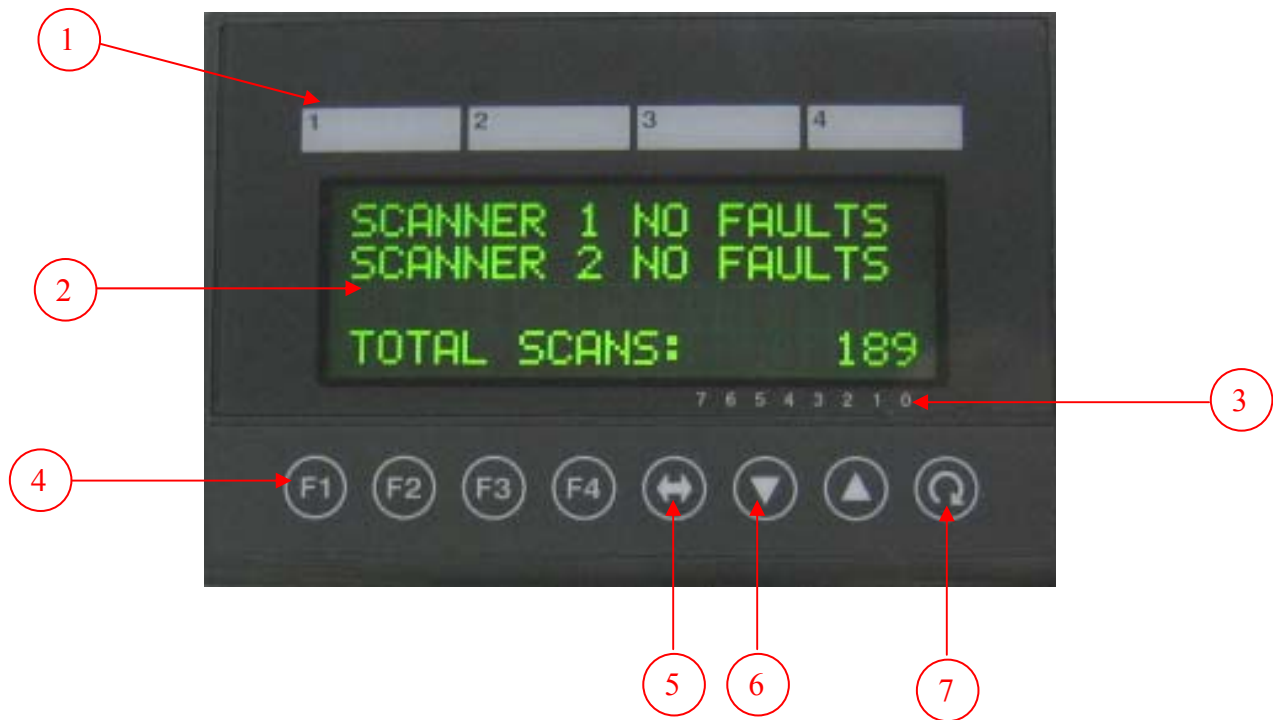
Switch Functions:

1. Alarm Light: will illuminate and flash under a fault condition

2. Operator interface: see page 4

3. Key Switch: the key switch is a three position maintained switch. The three positions are "ON", "OFF", and "TEACH". Each scanner is controlled independently by it's own switch. The normal position is "ON" (center location), in this position the scanner will function normally. In the "OFF" (right location), the individual scanner will be powered off. The other scanner will function normally. The teach function is used in conjunction with Microscan scanners. When the Matchcode function is activated and outputs one or two are set to mismatch (ESP software), the teach function will be operable. To use this feature momentarily move the key switch to the "TEACH" position and then back to the "ON" position. The next barcode, read by the scanner, will be stored into scanners memory. The scanner will than give an output when any barcode,

other than the taught barcode, is detected in front of the scanner. Note, If power is turned off to the scanner, the memory will be cleared and the scanner will need to be re taught..

4. Audible Buzzer: will sound under a fault condition.

5. Main Power Switch: used to switch power to controller and scanners. Also houses two 4 amp fuses and EMI/RFI filter.

6. Cable Connection Scanner One: scanner number one plugs into this connector. This connector is also used to program either scanner.

7. The RS232 connection is used to communicate with a PC for programming the scanners.
Note: The RS232 port will only communicate with the scanner plugged into the cable connection for scanner one. Scanner number two will temporarily need to be plugged into terminal #1, to be programmed.

8. Product Sensor Connector: the product sensor plugs into this connector.

9. Cable Connection Scanner Two: scanner number two plugs into this connector. This connector cannot be used to program the scanner.

10. Auxiliary Outputs: used to control external devises.
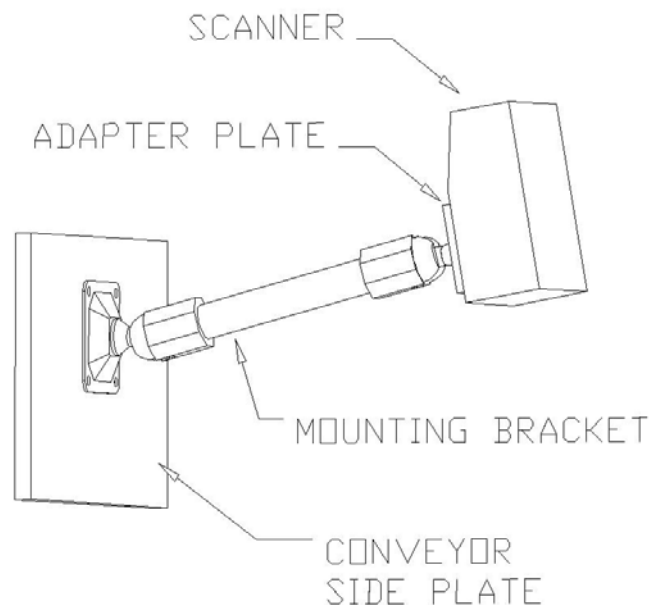
OPERATOR INTERFACE

1. Customized Lamps: Lamp number one is used to indicate when a defective product has been detected on scanner number one. Lamp number two is used to indicate when a defective product has been detected on scanner number two (when used).

2. LCD Display: the display is used to show visual information such as error conditions and counts.

3. Bit Guide: This feature is not used for this application.

4. Custom Switches (function keys): function key number 1 is used to reset fault conditions. Function key number two is used to reset the counters.

5. Horizontal Scroll Button: This feature is used when setting a value to the PLC.

6. Vertical Scroll Button: is used to scroll up and down through the different pages of the display screen.

7. Enter Button: This feature is used when storing a value to the PLC.

Scanner Mounting:

The Scanner and controller box should be mounted in a clean dry environment where they will not be exposed to any moisture. The controller should be mounted where it will be accessible and the display can easily be read.

The scanner should be mounted at the correct distance from the barcode, as determined by the scanner instructions and the barcode "X" value. Many scanners have a visual indicator, which shows how well it reads the barcode. This is a useful tool used to set-up the scanner. In some cases a computer may be required. It is also important that bright light or direct sunlight does not shine directly on the scanner. This condition may cause improper operation.

Typical Scanner Mounting

The mounting brackets provided are for a typical application where the scanner is mounted to the side of a conveyor. If this mounting configuration does not accommodate your application, please contact your distributor for alternate mounting components.

Connections:

Caution disconnect power when making electrical connections

Scanners:
Each scanner is connected using either a 25 pin or 15 pin male to female cable. Plug the female end of the cable into the scanner and the male end into the scanner control box labeled scanner one. Be certain to tighten all the cable mounting screws. Repeat for the second scanner, if used. The cables provided are a special high quality cable, which will eliminate noise and corrupted data during transmission. Please use these cables.

Product Sensor:
The product sensor is used to provide the start signal to begin the scan cycle. For most applications the scanner will look for a barcode whenever the product sensor is blocked. Mounting the product sensor approximately centered, above or below the scanner will give the best range for detecting a barcode at different locations on the product. Make sure the sensor detects the product prior to the barcode being positioned in front of the bar code reader. The product sensor plugs into the controller box 9 pin connector, labeled sensor.

RS232 Communication:
The RS232 port is used to communicate to the scanner using the software provided with the scanner. For most applications the scanner and controller will be pre-set for your application. Communication with the scanner may not be necessary. If it is necessary to communicate, connect the 9 pin male to female straight through cable provided from the serial port of your PC to the RS232 port of the scanner controller box. If a Microscan scanner was provided, ESP software can be used for communication. When using the ESP software, the operator selects the correct COM port on the PC and the software will set the communication parameters.

Aux Outputs:
The auxiliary output can be used to control additional equipment such as an external alarm, reject station or stopping a conveyor. Three relay outputs are provided; each output is rated for 2 amps. The standard configuration is as follows:

PIN 1   Common
PIN 2   Reserved for custom applications
PIN 3   Used to stop a conveyor with any signal from scanner(s) output 2, which would normally be a mismatch condition or consecutive signals from scanner(s) output 1, which would be a no read condition.
PIN 4   Used to trigger an external alarm or rejection station. This output will turn on for any scanner fault.

Display Screens:
The first screen will show the status of the scanners. During normal operation the screen will display "NO FAULTS" for both scanners. If either scanner gets a no read or mismatch, the fault will be displayed. Pressing "F1" will clear the fault. The bottom line displays total scans; pressing "F2" can reset this counter along with the fault counters.
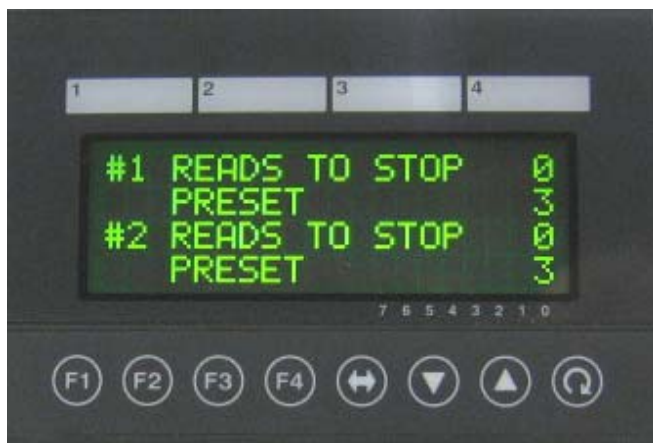

Main Display screen

The second screen displays the fault counters. Pressing the up or down arrows will allow the display to scroll between screens. If a second scanner is not used, the fault counters for scanner two will not function. A no read condition occurs when a product signal is given, but the scanner does not read a barcode. A mismatch occurs when the barcode read does not match the barcode data stored into the scanners memory. Press F2 to reset the counters.

Counter Display screen

Reads to Stop Display screen

The third screen shows how many consecutive no reads before providing an output to stop the conveyor (aux output pin 3). "READS TO STOP" shows the actual count value. "PRESET" is the upper limit of consecutive no reads that will provide a signal to stop the conveyor. If it is required to stop the conveyor for every no read condition, set this value to one.

To adjust the preset value, scroll to the "READS TO STOP" screen (third screen), using the up or down scroll arrows. Press and hold the "enter" button until the word "preset" begins to flash. Using the up or down scroll button select scanner number 1 or scanner number 2. Using the Horizontal scroll button index the cursor to the digit to be changed. Change the value using the up or down scroll button. Press and hold the "enter" button for two seconds. The value is now changed.

Adjusting the Preset

Start-up

Make sure all components are mounted properly and securely. Check all cable connections and verify they are connected properly and securely. Power up the unit and verify the led on the product sensor illuminates. Place a product with a barcode in front of the scanner. When the product blocks the product sensor, the laser on the scanner should turn on and read the barcode.

Remember, pressing "F1" will reset any alarms

Most of the barcode readers will have an indicator to show how well it is reading the barcode. This can be helpful to set the scanner angle and distance to the barcode, without having to connect to a computer. If using the Microscan MS-860, pressing and holding the "EZ" button until the unit beeps once will put it in set-up mode allowing use of the led read percentage indicator on the side. Briefly pressing the "EZ" button a second time will put the unit in run mode. Other scanner may require multiple product inputs or a computer connected to set the best possible read rate. If you are having difficulties getting the scanner to read the barcode, please check with the manufactures instructions.

Before we ship a bar code scanner system, we usually test and set the scanner for the specific application. However in some situation we are not provided with all of the information, or the application may have changed. In these instances some of the parameters may need to be changed. Keep in mind many of the bar code scanners need to be set for such parameters as symbologies, number of characters, and check digit.

Operation:

As the product moves down the conveyor and blocks the product sensor, a signal is given to the scanner to start looking for a barcode. If a barcode is not detected before the end of the box passes the product sensor, a fault will be given to sound an audible alarm and illuminate a beacon light. If the matchcode feature is enabled not only will it need to detect a barcode, but it will need to read and match all or some of the characters of the barcode. If an incorrect barcode is detected when using matchcode a signal will be given to stop the conveyor. Additionally if a pre-determined number of consecutive no reads are detected a signal will be given to stop the conveyor. Whenever the conveyor stops the alarms will energize.

Maintenance:
This system requires very little maintenance. Periodically check screws and electrical cable connections for tightness. The scanner and controller should be kept clean. When cleaning be careful not to scratch the glass plate over the scanner.