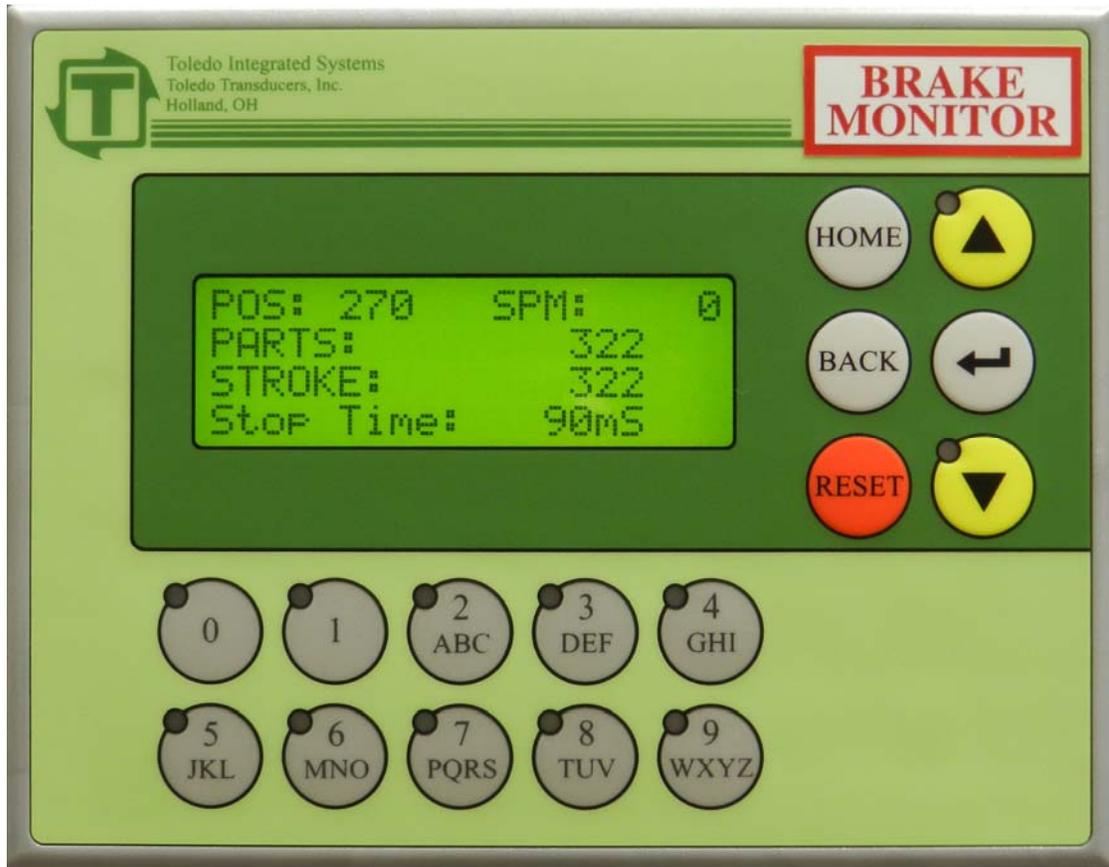
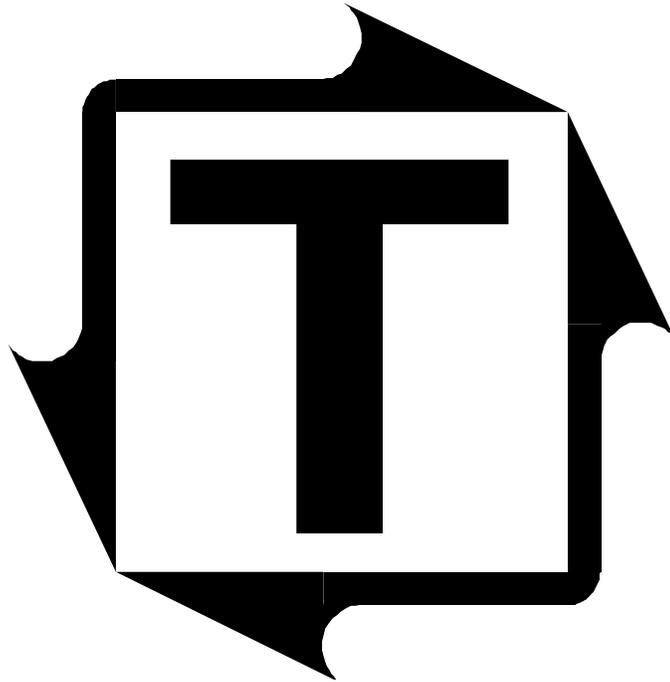


Brake Monitor



Toledo Integrated Systems
Toledo Transducers, Inc.

Installation and Operation Manual



Brake Monitor Operator Manual

Revision: 3.0



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Limited Warranty

The software and sensors are warranted by the manufacturer, Toledo Integrated Systems, to be free from defects in workmanship for one year from the date of the manufacturer's shipment. This warranty is limited to the functions of the Brake Monitor as stated in this manual.

All products subject to this warranty must be returned for examination, repair or replacement.

F.O.B. to: Toledo Integrated Systems
6834 Spring Valley Drive
Holland, OH 43528

The express warranty set forth herein is in lieu of all other warranties, expressed or implied, including without limitation any warranties of merchant-ability or fitness for particular purpose. All such warranties are hereby disclaimed and excluded by the manufacturer.

Repair or replacement of defective products as provided above is the sole and exclusive remedy provided thereunder. The manufacturer shall not be liable for any further loss, damages, or expenses, including incidental or consequential damages, directly or indirectly arising from the sale or use of this product. This includes any failure inside other manufacturers units that are tied into the Brake Monitor.

Any unauthorized repairs or changes to the program will void this warranty.

There are no warranties that extend beyond those expressly set forth herein.

Brake Monitor Manual Revision 3.0

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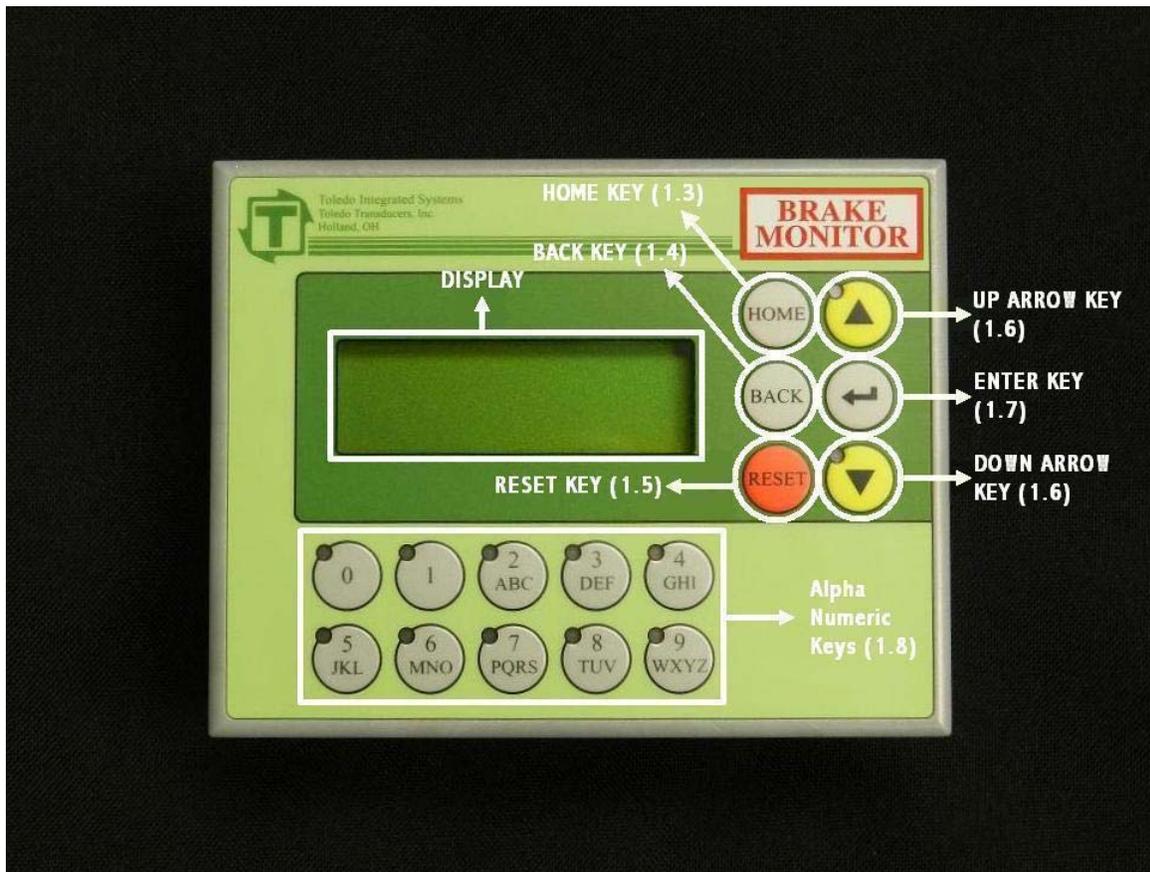
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SECTION 1

Brake Monitor Operation Keys



The Brake Monitor comes standard with parts and stroke counters and immediate stop output.

The above picture shows the operation keys that will be used throughout the manual.

1.1 ADJUSTING THE CONTRAST

If the screen is either too dark or too light, the contrast can be adjusted by pressing and holding the <ENTER> key and pressing either the up or down arrow key. To darken the text, press the up arrow, press the down arrow to lighten the text. This can be done from any screen.

1.2 DISPLAY BACK LIGHT

The Back Light on the display screen will automatically go out after a period of inactivity. Press any key to reactivate the Back Light.

SECTION 1

Brake Monitor Operation Keys

1.3 HOME KEY

Pressing the <HOME> key will bring up the Home Screen from any other screen. The Home Screen displays key information for the operator. Pressing the <HOME> key from the Home Screen will display the Menu Select Screen. The Menu Select Screen allows the operator to maneuver through the different screens and functions of the Brake Monitor.

1.4 BACK KEY

In most instances, pressing the <BACK> Key will return control to the previous screen. On specified screens, pressing the <BACK> Key will show additional settings, or return control to a specified screen.

1.5 RESET KEY

The red <RESET> Key is used to reset any faults that occur. Refer to Section 8 Faults for an explanation. The <RESET> Key is also used to reset the Parts Counter and the Stroke Counter. For an explanation, refer to Section 2.5 Back Key – Reset Counters.

1.6 UP AND DOWN ARROW KEYS

The Up and Down Arrow Keys are used to move the cursor around the screen. When used on a menu screen, the selected display line will blink.

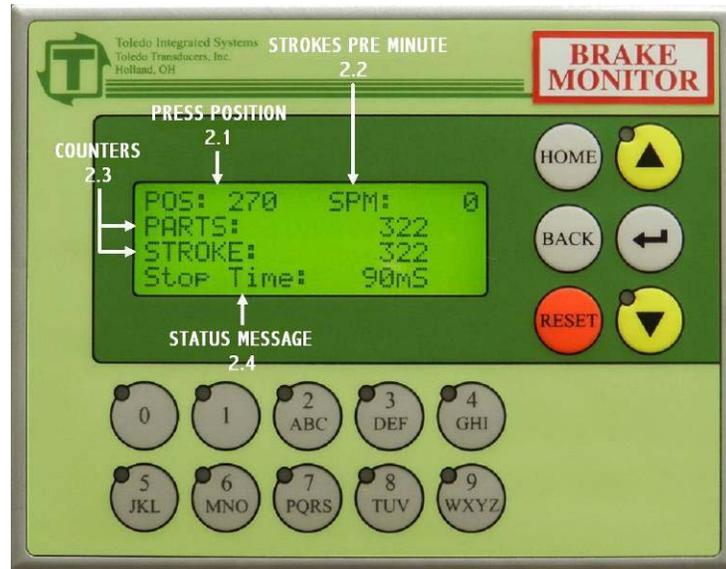
1.7 ENTER KEY

The <ENTER> Key is used to submit information to the Brake Monitor.

1.8 ALPHA-NUMERIC KEYS

The Alpha-numeric Keys are used when making selections from the displayed options. Only keys that currently have valid options will be illuminated. The Alpha-numeric Keys are also used to enter text.

SECTION 2 HOME SCREEN



Pressing the <HOME> key will bring up the Home Screen from any other screen. This screen displays relevant information for the operator. Pressing the <HOME> key from the Home Screen will display the Menu Select Screen.

2.1 POS – POSITION

This display shows the current angle of the press in degrees (0-359).

2.2 SPM – STOKES PER MINUTE

When the press is in motion, this will display the current strokes per minute.

2.3 COUNTERS

Parts Counter

This will display the number of parts produced since the last Parts Counter reset occurred. For an explanation of how to reset the Parts Counter, refer to Section 2.5 Back Key – Reset Counters.

Stroke Counter

This will display the number of press strokes since the last Stroke Counter reset occurred. For an explanation of how to reset the Stroke Counter, refer to Section 2.5 Back Key – Reset Counters.

2.4 STATUS MESSAGE

The Status Message display line will show the last Stop Time, if no faults are present. If a fault is present it will display the fault.

SECTION 2 HOME SCREEN

2.5 BACK KEY – RESET COUNTERS



To Change focus from one counter to another, press the *<ENTER>* key.

PARTS

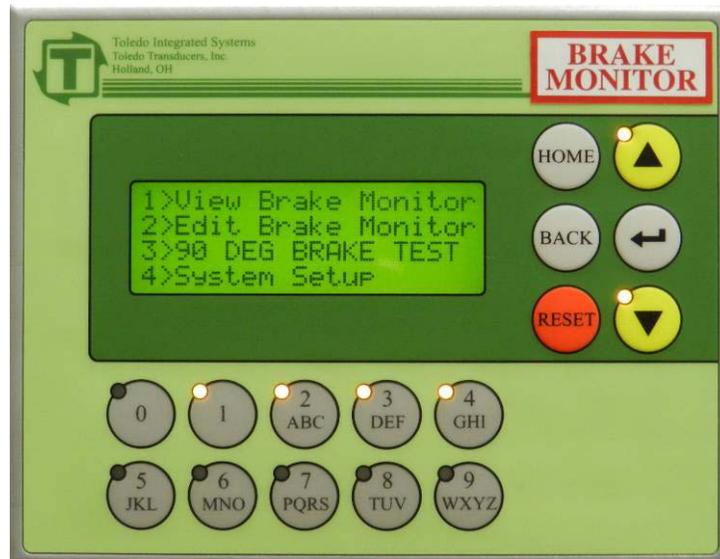
To reset the Parts Counter, press the red *<RESET>* key when the cursor (*<*) is next to the Parts Counter Value. To move the cursor to the Stroke Counter, press the *<ENTER>* key.

STROKE

To reset the Stroke Counter, press the red *<RESET>* key when the cursor (*<*) is next to the Stroke Counter Value. To move the cursor to the Parts Counter, press the *<ENTER>* key.

When all settings on this page are acceptable, press the *<BACK>* key to return to the Home screen.

SECTION 3 MENU SELECT SCREEN



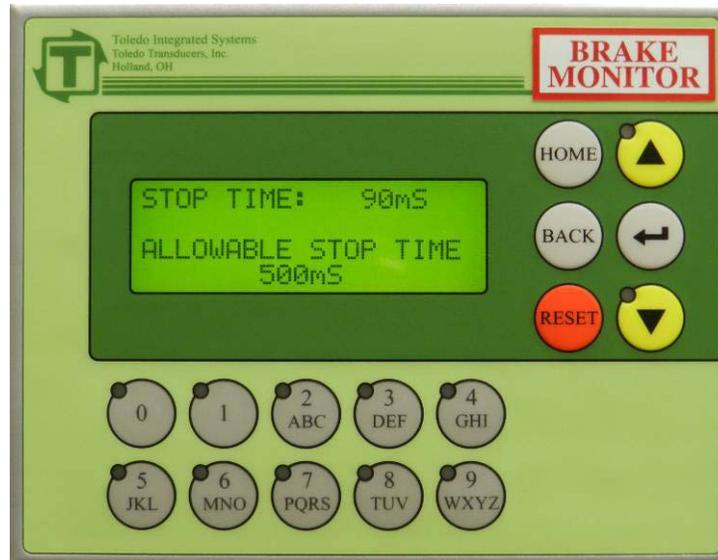
From the Menu Select Screen, you can maneuver to the different settings within the Brake Monitor. The following four functions can be accessed from this screen: View Brake Monitor, Edit Brake Monitor, 90 DEG BRAKE TEST and System Setup. To protect the system settings, a password is required for all functions except View Brake Monitor.

A selection can be made by either using the arrow keys, or by pressing the alpha-numeric key that corresponds with the appropriate menu option. The alpha-numeric keys that are currently valid will be illuminated. When the display line for the desired selection is flashing, press the <ENTER> key.

SECTION 4 VIEW BRAKE MONITOR

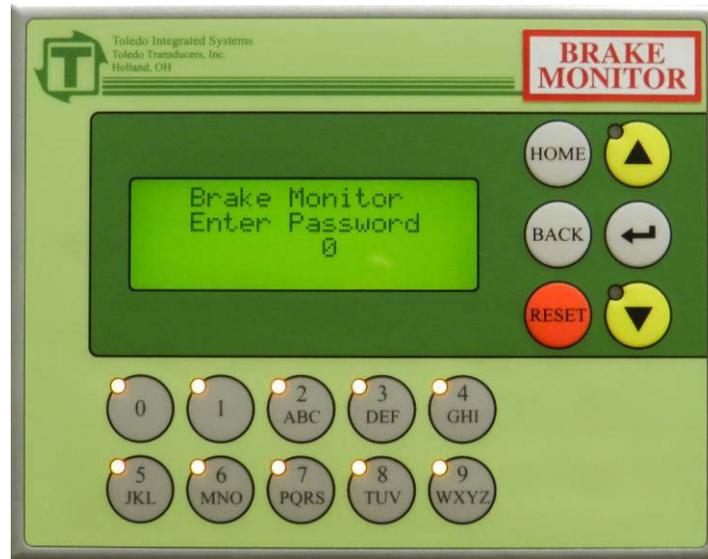
To view the current Brake Monitor settings, access the Menu Select Screen, select View Brake Monitor and press the <ENTER> key. You will be taken to the following screen. This screen shows the last Stop Time, and the Allowable Stop Time. Press the <BACK> key to return to the Menu Select Screen.

While in View Brake Monitor, no edits will be allowed.



SECTION 5 EDIT BRAKE MONITOR

If it is necessary to modify any of the Brake Monitor settings, access the Menu Select Screen, select Edit Brake Monitor and press the <ENTER> key. The following screen will appear.

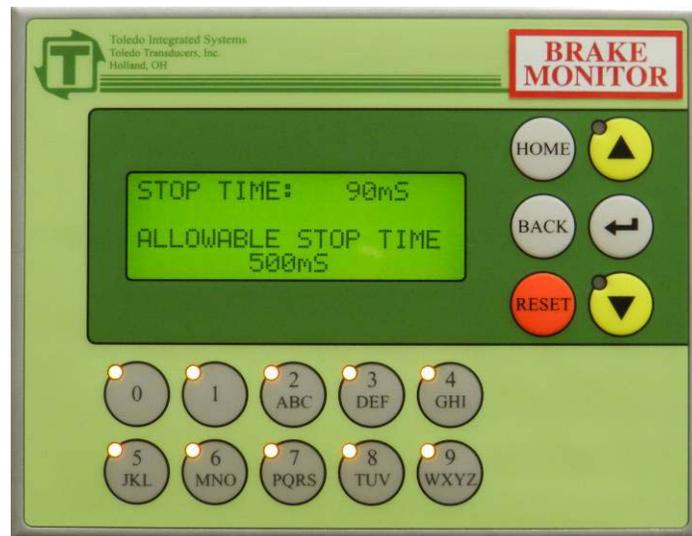


Type the password using the alpha-numeric keys, then press the <ENTER> key. If the wrong password is entered, the screen will flash "INCORRECT PASSWORD". Either retry to enter the correct password, or press the <BACK> key to return to the Menu Select Screen.

SECTION 5 EDIT BRAKE MONITOR

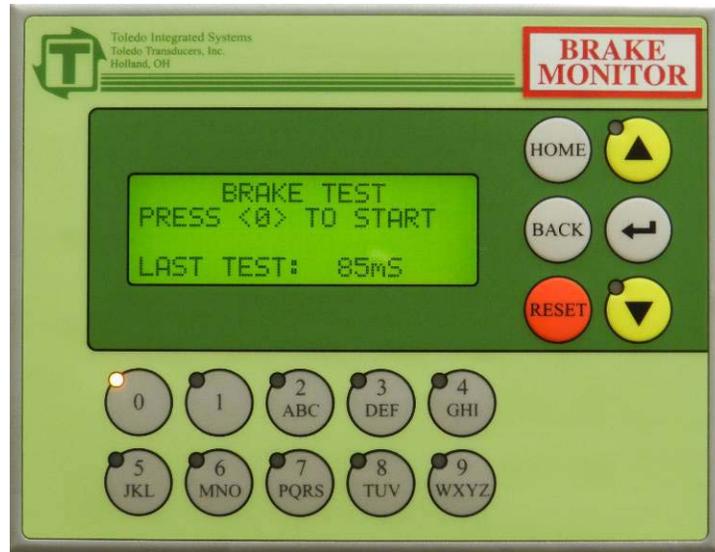
After entering the correct password, you will see the Edit Brake Monitor screen (shown below). The Allowable Stop Time value will be blinking. Enter a new value by using the alpha-numeric keys. The valid range for Allowable Stop Time is 0-1000 milliseconds (i.e. 1000mS=1 Second). When the correct Allowable Stop Time is displayed, press the <ENTER> key. Press the <BACK> key to return to the Menu Select screen.

If the Stop Time (the time it takes from when the power to the clutch valve is removed, until the ram comes to a complete stop) is longer than the Allowable Stop Time, an alarm will occur. To set the Allowable Stop Time, the Global Password must be entered from the Menu Select Screen.



SECTION 6 90 DEG BRAKE TEST

From the Menu Select Screen, select 90 DEG BRAKE TEST, and press the <ENTER> key. You will be prompted for the password. Type the password using the alphanumeric keys, then press the <ENTER> key. If the wrong password is entered, the screen will flash “INCORRECT PASSWORD”. Either retry to enter the correct password, or press the <BACK> key to return to the Menu Select Screen.



After the correct password has been entered, the 90 DEG BRAKE TEST screen (shown above) will be displayed. This Brake Test is used to test Stop Time when an immediate stop signal is given to the press control when the press is at 90 degrees. The bottom line of the display indicates the stopping time from the last time the test was performed. Brake tests should be performed periodically to check the condition of the brake.

SECTION 6 90 DEG BRAKE TEST

Steps to perform a brake test:

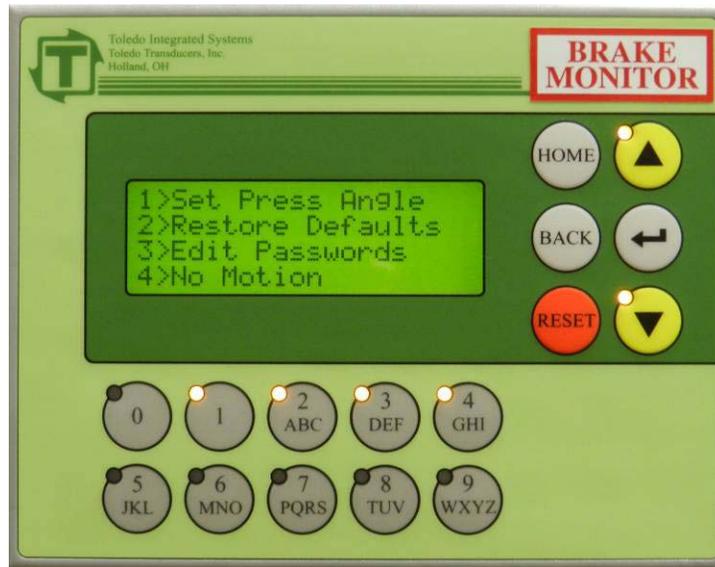
- 1) Set the counterbalance pressure according to the upper die weight.
- 2) Put the press at top of the stroke.
- 3) Put the press in continuous or single mode.
- 4) Run the main motor at its fastest speed.
- 5) Press 0 to activate the brake test.
- 6) Run the press.
- 7) When the press passes 90 degrees, the immediate stop output will open up giving a signal to the press control to stop.
- 8) Once the press comes to a complete stop, the bottom line will display the stopping time.
- 9) Brake test is complete.

To cancel a 90 Degree Brake Test, press the <BACK> key at any time during the process.

SECTION 7 SYSTEM SETUP

From the Menu Select Screen, select System Setup and press the <ENTER> key. You will be prompted for the password. Enter the required password, then press the <ENTER> key. If the wrong password is entered, the screen will flash “INCORRECT PASSWORD”. Either retry to enter the correct password, or press <BACK> to go back to the Menu Select Screen.

NOTE: The Global Password is used to access this screen.



After the correct password has been entered, the System Setup Menu screen (shown above) will be displayed. The following 4 options will be listed: Set Press Angle, Restore Defaults, Edit Passwords and No Motion. Use either the alpha-numeric keys or the arrow keys to select which System Setup to edit. When the correct selection is flashing, press the <ENTER> key.

SECTION 7 SYSTEM SETUP



7.1 SET PRESS ANGLE

After selecting Set Press Angle from the System Setup Menu, the above screen will be displayed.

Steps to set the Press Angle:

- 1) Inch the press around and make sure that the PRESS ANGLE is moving in the correct direction. If it is not, switch the A and B Encoder wires.
- 2) Inch the press around at least one full stroke to make sure that the Z pulse has cycled
- 3) Inch the press to a known position (the most common is either 0 or 180).
- 4) When the press is at a known position, use the numeric keys to type in the Angle offset (0-359). The offset can be calculated by determining the number of degrees the displayed angle is from the actual angle of the press.
- 5) When the correct offset is displayed, press the <ENTER> key.

SECTION 7 SYSTEM SETUP



7.2 RESTORE DEFAULTS

After selecting Restore Defaults from the System Setup Menu, the above screen will be displayed. To restore the factory Defaults; press the red *<RESET>* key. This will reset all the settings in the entire unit to factory default.

A confirmation screen will be displayed. Press the red *<RESET>* key to continue to restore the factory defaults. A message confirming that the defaults are restored is displayed. Control will return to the System Setup Menu.

To quit before restoring the factory defaults, press the *<BACK>* key. Control will return to the System Setup Menu.

Factory Defaults:

Allowable Start Time = 500mS

Allowable Stop Time = 500mS

SECTION 7 SYSTEM SETUP



7.3 EDIT PASSWORD

After selecting Edit Passwords from the System Setup Menu, the user will be able to change the passwords.

The unit comes with 2 levels of passwords:

- 1) Setup – This level gives the user access to all functions except for Edit Brake Monitor and System Setup.
- 2) Global – This level gives the user access to all functions of the Brake Monitor.

The unit comes factory set with the passwords disabled (set to 0). Make sure to change these passwords to protect the data from accidental changes.

To disable either password, enter a 0 in for the password.

NOTE: Entering a 0 for global disables both passwords.

When restoring defaults (see Section 7.2) the passwords are unaffected.

SECTION 7 SYSTEM SETUP



7.4 NO MOTION

After selecting No Motion from the System Setup Menu, the user will be able to change the Allowable Start Time. The Allowable Start Time value will be blinking. Enter a new value by using the alpha-numeric keys. The valid range for Allowable Stop Time is 0-5000 milliseconds (i.e. 5000mS=5 Seconds). When the correct Allowable Start Time is displayed, press the <ENTER> key. Press the <BACK> key to return to the Setup Menu.

If the Start Time (the time it takes from when the power to the clutch valve is applied, until the ram starts moving) is longer than the Allowable Start Time, an alarm will occur.

SECTION 8 FAULTS

The Status Message area on the Home Screen (see section 2.4) will display the appropriate fault message. To reset the fault press the red <RESET> key on the Brake Monitor. The Brake Monitor will display the Faults Display Screen. Press the <RESET> key again to reset the fault.

If an additional faults exist, the next fault will be displayed, and the above reset process will need to be repeated to clear that fault.

8.1 DRIFT FAULT

A Drift Fault occurs when motion is detected on the encoder without the clutch valve engaged.

8.2 NO MOTION FAULT

When the clutch valve is engaged, we wait for the press to get above 1SPM. If this time exceeds the Allowable Start Time we declare a NO MOTION FAULT. The bottom display on the Home Screen will display this fault. Press the <RESET> button to clear the fault.

8.3 BRAKE MONITOR FAULT

This fault occurs when the stopping time of the press exceeds the Allowable Stopping Time. Refer to Section 5 Edit Brake Monitor for an explanation on setting the Allowable Stop Time.

USER NOTES

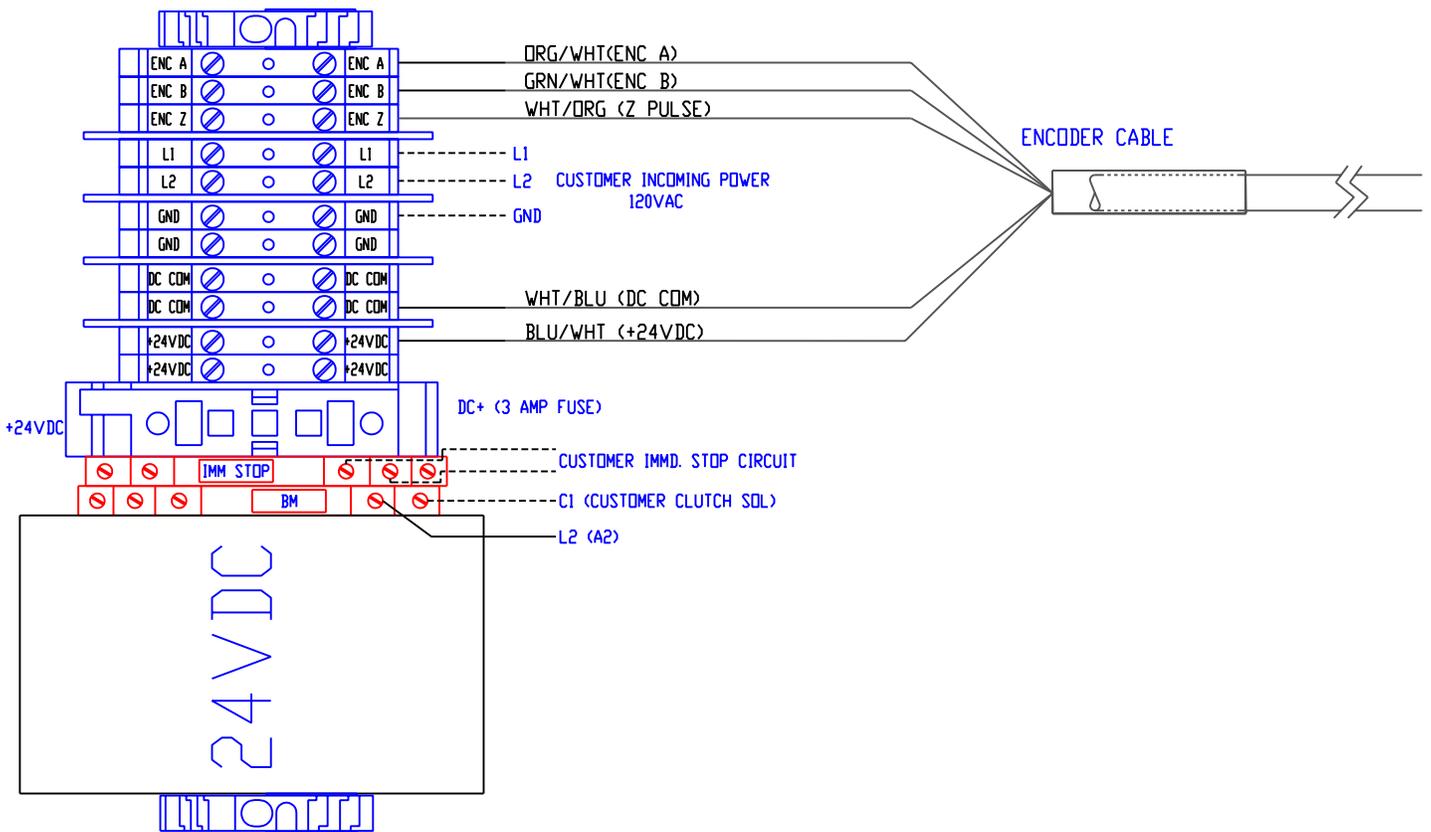
USER NOTES

REVISION HISTORY

4/2013 REV 3.0 Initial Release

APPENDIX A

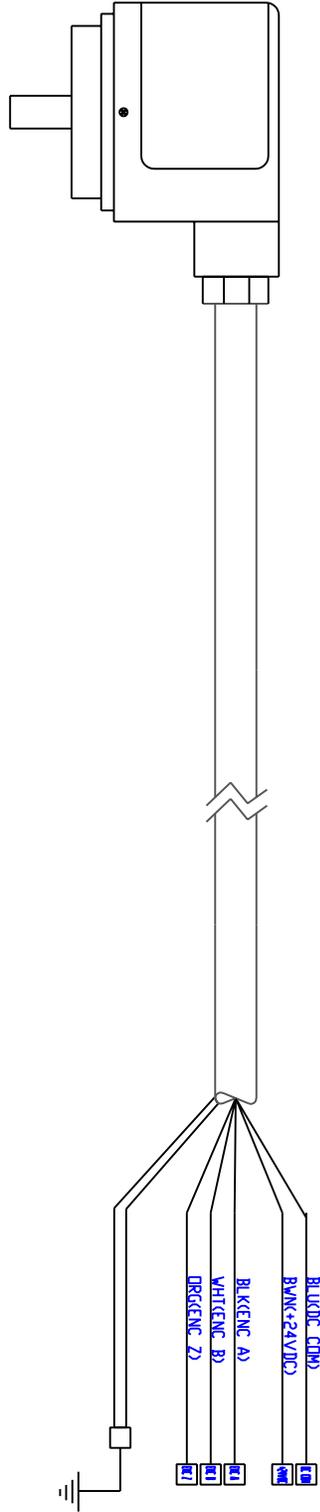
Brake Monitor Terminal Strip Layout



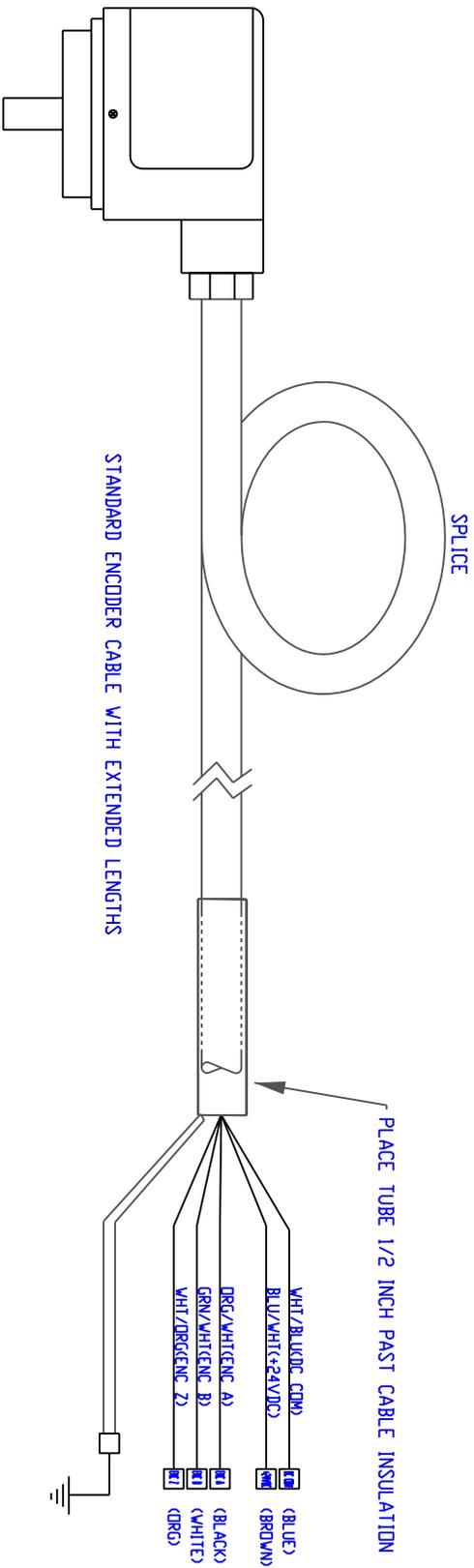
APPENDIX A

ENCODER CABLE WIRING

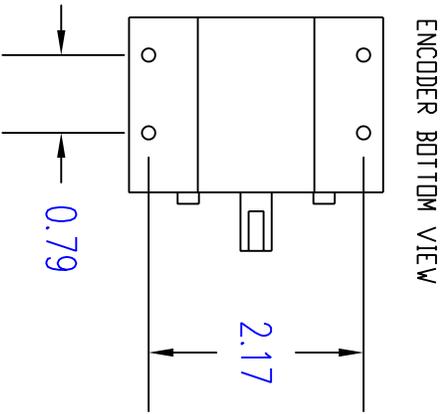
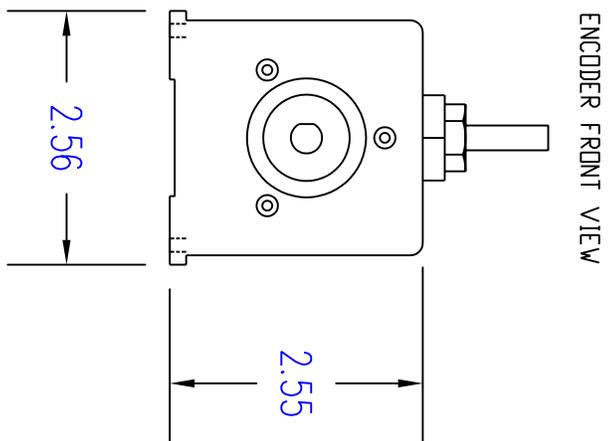
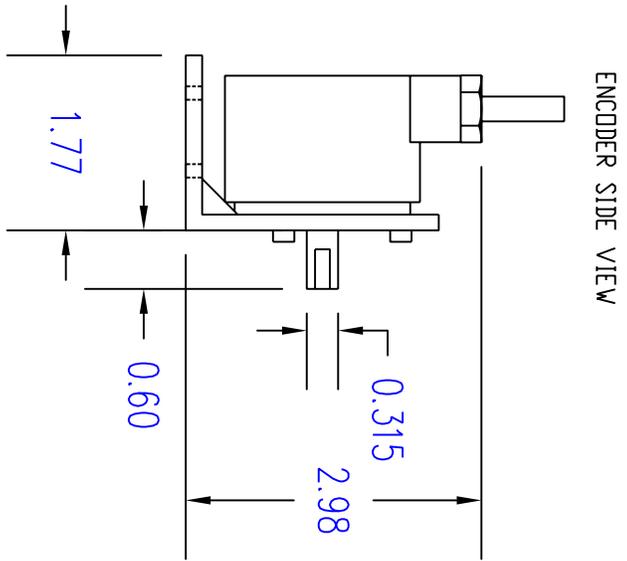
STANDARD ENCODER CABLE 6'



STANDARD ENCODER CABLE WITH EXTENDED LENGTHS

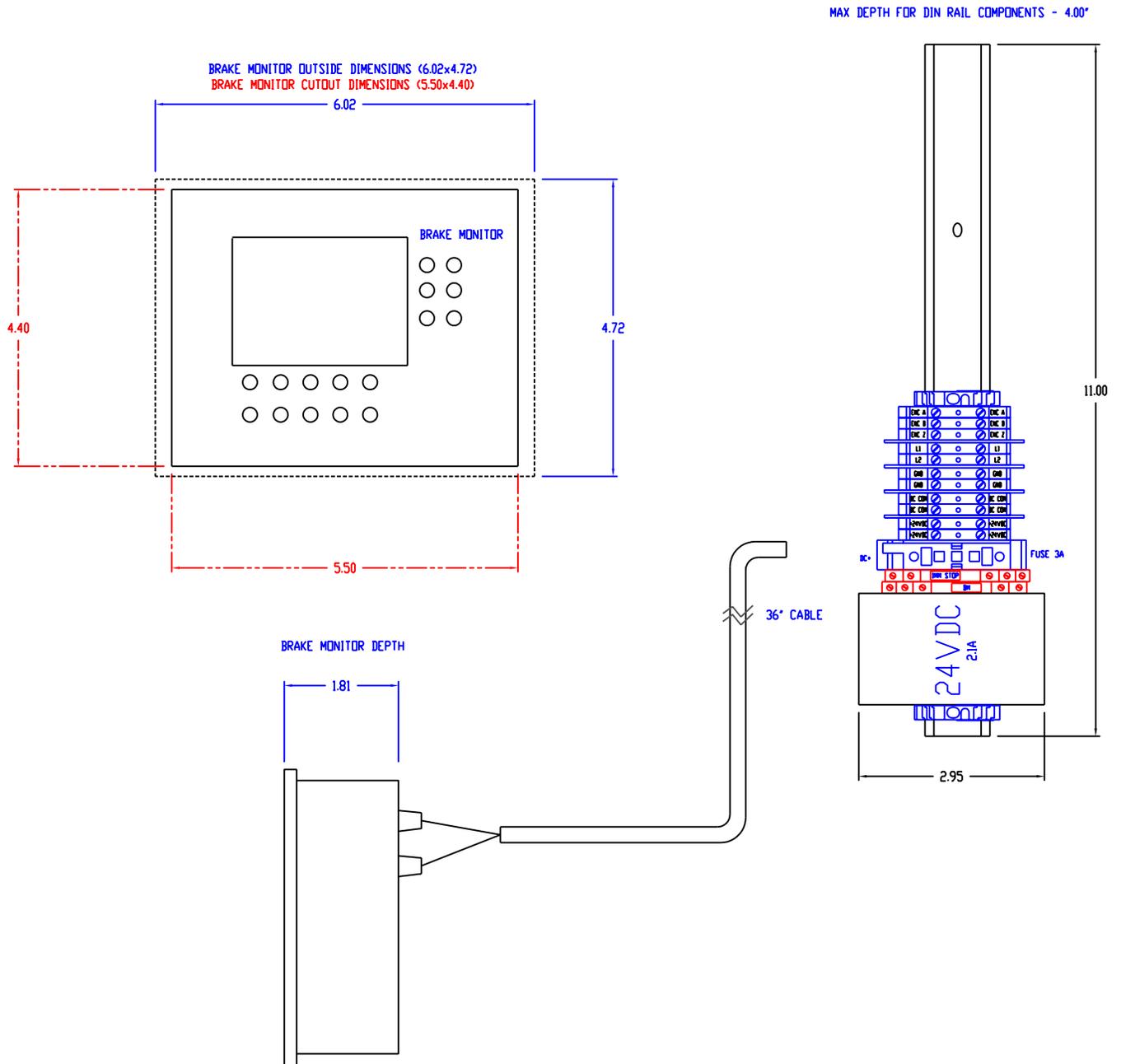


ENCODER DIMENSIONS



APPENDIX A

BRAKE MONITOR MOUNTING DIMENSIONS



• ALL DIMENSIONS IN INCHES •