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More

SmartPAC® SFI

SmartPAC and SmartPAC 2 ServoFeed Interface

1102500

Rev. J April 2016

Tech Support Hotline 800-586-8324 8-5 EST



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Changes for Revision J of the SmartPAC SFI User Manual (1102500)

Revision J of the SmartPAC SFI User Manual covers all SmartPAC SFI software versions.

The changes for Revision J include:

- The loopback wiring diagram, previously Figure 12, now is numbered Figure 13
- Added wiring diagram Figure 12 SmartPAC to Rapid Air Servo Control Ver C (100D/T) Feed Controller

PROVIDE IMPORTANT INFO

DURING TROUBLESHOOTING WITH WINTRISS TECH SUPPORT!

Whenever you need to contact Wintriss Tech Support for technical assistance, be ready to provide some important information to help solve the problem. Please supply: product name (e.g. SmartPAC standard); installed options (e.g. SFI, etc.); and firmware version number (e.g. Vs. 2.00). You can determine the last two items, by going into "Installed Options" in Initialization mode (see Chapter 3 for details). You can also determine firmware version number from the labeled chip on the firmware board (see Figure 2-1, page 7, for location).

Thank you for purchasing a Wintriss Product. We appreciate your business and want to do whatever we can to ensure your satisfaction. Wintriss products are built to stay on the job day after day, and are backed by an ironclad guarantee, international standards approvals, and unbeatable support. Whenever you need assistance or service, we back all our products with excellent spare parts inventories, training programs, and prompt repair service. We would like to share with you a list of service options—probably the largest number of service options offered in the industry.

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We offer a toll-free line for technical assistance. Call our Wintriss Technical Support Hotline at 1-800-586-TECH (8324) should you have any questions about your equipment. Our technical staff is ready to assist you Monday through Friday, 8 a.m. to 5 p.m. EST. In many cases our experienced technical staff can resolve your inquiry right over the phone.

- **Return Authorization**

Please call our “800” number for a return authorization (RMA) number to return a product for repair. Returned goods must arrive freight prepaid. In order to process your return quickly, we ask that you provide us with the following pertinent information when you call: purchase order number, shipping address, contact name and telephone number, and product type. The assigned RMA number should appear on all packages returned to Wintriss Controls Group to ensure prompt service.

At the time of requesting an RMA, you will be quoted a flat-rate repair price for the product you are returning. We ask that you either fax us a PO for that amount or enclose the PO with the returned item. This will enable us to ship the item back to you as soon as the repair has been completed. If the item cannot be repaired or there are additional charges, you will be contacted for approval.

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- **Restocking Charge**

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Whatever the product, we are committed to satisfying you with innovative engineering, quality construction, reliable performance, and ongoing, helpful support. Call us whenever you need assistance.

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How To Use This Manual

This manual shows you how to install and operate the SmartPAC ServoFeed Interface (SFI) for the following press servofeeds:

- Dynamic “Old” 450, 450, and 750 SFIs
- Littell Ultra SFI
- Minster Ultra, B & R, and Kinetix SFIs
- P/A Ultra and K350/550 SFIs
- Rapid-Air and Rapid-Air Servo Control Ver C (100D/T)
- Reliance Cut-to-Length SFI
- Vamco SFI

For Coe, CWP, Electrocraft, Indramat, and Waddington servofeeds, refer to one of the following Wintriss user manuals:

- Coe Wintriss SFI User Manual (1105700)
- CWP Wintriss SFI User Manual (1108100)
- Electrocraft Wintriss SFI User Manual (1109200)
- Indramat Wintriss SFI User Manual (1104500)
- Waddington Wintriss SFI User Manual (1102700)

Chapter 1 introduces you to the SmartPAC SFI, lists the specific servofeeds covered in the manual, and discusses SFI features and operation.

Chapter 2 shows you how to install the SmartPAC ServoFeed Interface (SFI). Since installation is similar for the different servofeeds, one set of instructions is provided for all feed models covered in the manual. Wiring connections for each feed are given in the wiring diagrams at the end of the manual.

Chapter 3 explains how to use SFI in all three SmartPAC operating modes – Initialization, Program, and Run – and how to troubleshoot your SmartPAC SFI. SFI menu choices vary depending upon the servofeed to which you are connected.

Wiring schematics for the feed controllers shown above are provided at the end of the manual. Use these drawings in conjunction with Chapter 2 (Installation). Wiring diagrams are also provided for performing the loop-back test discussed in Chapter 3.

Warranty

Wintriss Controls warrants that Wintriss electronic controls are free from defects in material and workmanship under normal use and service for a period of one year (two years for Shadow light curtains) from date of shipment. All software products (LETS/SFC and SBR), electro-mechanical assemblies, and sensors are warranted to be free from defects in material and workmanship under normal use and service for a period of 90 days from date of shipment. Wintriss's obligations under this warranty are limited to repairing or replacing, at its discretion and at its factory or facility, any products which shall, within the applicable period after shipment, be returned to Wintriss Controls freight prepaid, and which are, after examination, disclosed to the satisfaction of Wintriss to be defective. This warranty shall not apply to any equipment which has been subjected to improper installation, misuse, misapplication, negligence, accident, or unauthorized modification. The provisions of this warranty do not extend the original warranty of any product which has either been repaired or replaced by Wintriss Controls. No other warranty is expressed or implied. Wintriss accepts no liability for damages, including any anticipated or lost profits, incidental damages, consequential damages, costs, time charges, or other losses incurred in connection with the purchase, installation, repair or operation of our products, or any part thereof.

Please note:

It is solely the user's responsibility to properly install and maintain Wintriss controls and equipment. Wintriss Controls manufactures its products to meet stringent specifications and cannot assume responsibility for consequences arising from their misuse.

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SMARTPAC SERVOFEED INTERFACE
USER MANUAL
1102500
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Chapter 1 Introduction

NOTICE

In this manual, instructions may refer to *SmartPAC* where the information is the same for both SmartPAC and SmartPAC 2.

The original SmartPAC is sometimes referred to as *SmartPAC 1* to distinguish it from SmartPAC 2.

Your SmartPAC ServoFeed Interface is hardware and software that allows you to integrate your servofeed with SmartPAC. Once installed, you can make all the necessary job settings for your servofeed right at the SmartPAC keypad. SmartPAC will automatically transmit the settings to the servofeed every time a tool is changed. And because SmartPAC is a microprocessor, you can save all your settings for up to 200 tools in SmartPAC's electronic memory. You just recall the settings when you use the tool again.

To use the ServoFeed Interface, you must have or install the appropriate firmware into SmartPAC. Then you simply connect the unit to your servofeed using a cable that plugs into your servofeed's RS-232 port. See Chapter 2 for installation instructions.

To set your servofeed through SmartPAC, you simply use the menus on the SmartPAC screen. You will see a new selection on the SmartPAC programming menu when you install the interface. The new item is "FEED CONTROL". When you select "FEED CONTROL" using the SmartPAC keypad, you will see a menu for making SFI settings. You make the settings using the keypad in the same way that you make all other SmartPAC settings. See Chapter 3 for instructions on how to use the menus.

Servofeeds Covered in This Manual

This manual covers the following press servofeeds that can be operated by SmartPAC:

- Dynamic "Old" 450, 450, and 750 SFIs
- Littell Ultra SFI
- Minster Ultra, B & R, and Kinetix SFIs
- P/A Ultra and K350/550 SFIs
- Rapid-Air SFI
- Rapid Air Servo Control Ver C (100D/T)
- Reliance Cut-to-Length SFI
- Vamco SFI

For documentation on other servofeeds that can be interfaced with SmartPAC, consult the following Wintriss user manuals:

- Coe Wintriss SFI User Manual (1105700)
- CWP Wintriss SFI User Manual (1108100)
- Electrocraft Wintriss SFI User Manual (1109200)
- Indramat Wintriss SFI User Manual (1104500)
- Waddington Wintriss SFI User Manual (1102700)

SmartPAC ServoFeed Interface (SFI) Features

Using the SmartPAC menus, you can:

- Set feed length, percent acceleration, and some other parameters for your servofeed (depending upon which feed you have)
- Save these settings under the tool number and recall them automatically when you load setups by tool number
- Modify, or change, setups
- Use Feed Advisor to check your settings. If you key in feed angle and press speed, Feed Advisor warns you if your settings are not right for that job. *Important: Feed Advisor is not available for all servofeed models.*
- Adjust feed length and percent acceleration while the press is running (if applicable)
- Lock SFI settings in Adjust Mode (if applicable) to prevent unauthorized tampering

NOTICE

IMPORTANT!

SmartPAC SFI works differently with the various models of servofeeds available. *All SFIs are not alike!* Some do not have Initialization mode, while others may not allow you to adjust while the press is running. Programming choices may be different as well. In this manual, we will present all the possible options available in SFI, but the available options for your SFI may be different! Keep this in mind as you proceed!

SFI Operation

Your SmartPAC ServoFeed Interface (SFI) is actually an RS-232 interface. The RS-232 interface does not consist only of cables and connectors. Like ANSI standards that govern how your press must operate, the RS-232 interface requires specific circuits and software instructions for the transmission of signals and data between your servofeed and SmartPAC. Transmission of data is handled by software in SmartPAC and by the software built into your servofeed. Your servofeed came with all the RS-232 circuitry and software already in place.

Wintriss worked in conjunction with your servofeed manufacturer to design the proper hardware and software for SmartPAC that will automatically interface with your servofeed. That is why all you have to do is install the firmware board and connect a cable from

SmartPAC to your servofeed's RS-232 port. Everything else is automatic. You can then make SFI settings on SmartPAC just as you would if you used the interface on the servofeed itself.

SmartPAC 2 and Original SmartPAC

Your SmartPAC Servofeed Interface (SFI) can be used with either the original SmartPAC or SmartPAC 2. This manual covers SmartPAC SFI installation and operation for SmartPAC 1, but you can also use the manual to install and operate SmartPAC SFI on SmartPAC 2.

To install SmartPAC SFI on SmartPAC 2, follow the instructions in Chapter 2, referring to the appropriate wiring diagrams at the end of the manual. (Wiring diagrams show connections for both SmartPAC 1 and SmartPAC 2.) For SmartPAC SFI operation with SmartPAC 2, follow the instructions in chapters 3-6.

SmartPAC SFI menu organization in SmartPAC 2 is similar to that in SmartPAC 1, and SmartPAC SFI screens are virtually the same in both SmartPACs. As a result, you can refer to the screens and follow the steps provided in chapters 3-6 of this manual to initialize, program, run, and troubleshoot SmartPAC SFI in both SmartPAC 1 and SmartPAC 2. The main difference between the two SmartPACs is in their panel displays, as shown in Figure 1-1.

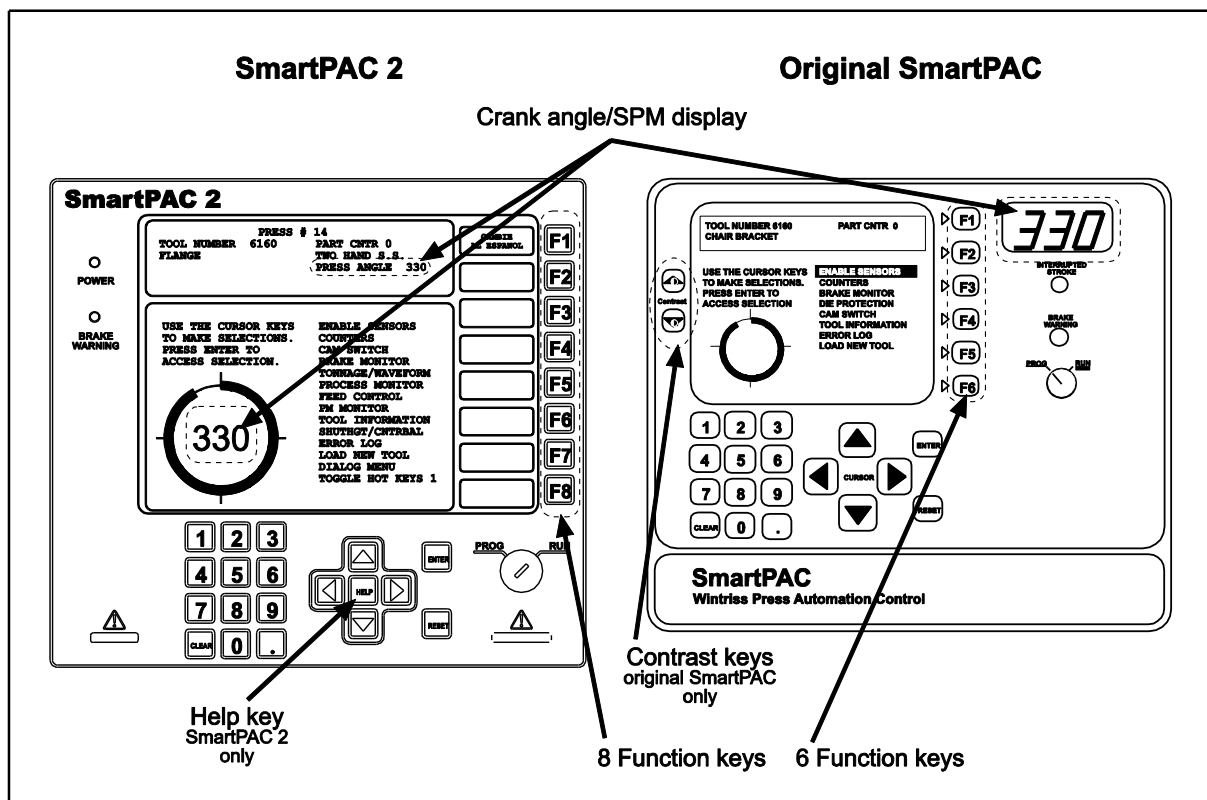


Figure 1-1. Panel Displays, SmartPAC 2 and Original SmartPAC

SmartPAC 1 and SmartPAC 2 panel displays use a different number of function, or “F,” keys. SmartPAC 2 has eight function keys, and the original SmartPAC only six. Be sure to read the instructions on the display and the descriptive labels next to the function keys before you press an “F” key.

NOTICE

On many SmartPAC 2 screens, you can press the HELP key (see Figure 1-1) to display instructions showing you how to use the screen.

If you need additional help using SmartPAC SFI with SmartPAC 2, refer to the appropriate manual

- SmartPAC 2 user manual:
- SmartPAC 2 (1126700)
- SmartPAC 2 with WPC (1126800)
- SmartPAC 2 with WPC 2000 (1128600)

Chapter 2

Installation of ServoFeed Interface

Installing the components that allow your SmartPAC to operate your servofeed is quite simple. Connecting SmartPAC to your feed involves the following tasks:

- Installing SFI firmware into SmartPAC
- Wiring connections from the SmartPAC TB102 (SmartPAC 2 TB103) terminal block to the RS-232 port of your servofeed controller (wiring diagrams are provided at the end of the manual)

Each step is described below. Installation is basically the same no matter what type of feed you have. Any significant differences among feeds will be noted.

For SmartPAC to be compatible with your servofeed, your kit should consist of the following ordered items:

- SFI firmware (unless factory-installed at time of order)
- 20-foot 2-conductor shielded cable with a 9-pin or 25-pin connector (depending upon the feed controller) attached on one end
- 10-pin connector

Upgrading SmartPAC Firmware

WARNING

ELECTRIC SHOCK HAZARD

- Ensure that the power source is off before you touch any wiring inside the enclosure.
- Disconnect power from the machinery it is connected to before making any wiring connections. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

To upgrade SmartPAC for SFI™ ServoFeed Interface capability, perform these steps:

NOTICE

For instructions on how to install upgraded firmware for SmartPAC SFI in SmartPAC 2, refer to Appendix B, “Updating SmartPAC 2 Firmware,” in the SmartPAC 2 user manual.

1. Turn power off to SmartPAC. The LCD on the front panel should be blank and the Angle/RPM display should be unlit.

CAUTION**DAMAGE TO BOARD FROM STATIC DISCHARGE**

Ground yourself before touching circuit boards or chips by touching a large metal object such as the press. Static electricity can destroy electronic components.

Failure to comply with these instructions could result in property damage.

2. Making sure that you are grounded, open the SmartPAC enclosure and find the SmartPAC firmware board, which is located in the lower left corner of the SmartPAC processor board (see Figure 2-1, next page).
3. Remove the four screws holding the firmware board to the standoffs on the SmartPAC processor board, and put them aside.
4. Unplug the old SmartPAC firmware board from the SmartPAC processor board and put it where it will not be confused with the new SmartPAC firmware board.

NOTICE

You can identify the SmartPAC firmware board by checking the white label on the firmware chip.

5. Remove the new SmartPAC firmware board from its package and plug it into the SmartPAC processor board so that the RAM and firmware chips are at the bottom, as shown in Figure 2-1.

NOTICE

Make sure to install the new SmartPAC firmware board with the correct orientation; otherwise, the board will not plug into its socket.

6. Screw the four corners of the board into the standoffs on the SmartPAC processor board.
7. Turn on power to the SmartPAC unit and wait for either the Program or Run screen to display on the LCD. If one of these screens displays clearly on the LCD, the control is operating properly and you can proceed with wiring your SFI, which is described in the next section.

If the unit powers up with a garbled display, turn the power off and check to make sure that the board is properly seated.

NOTICE

Some firmware upgrades cause SmartPAC to generate a tool number checksum error the first time you try to reload tool setups. If you get a checksum error after installing a new firmware board, enter Program mode and change one of the counters for that tool. Then reload the tool. If the unit still malfunctions, contact Wintriss Tech Support.

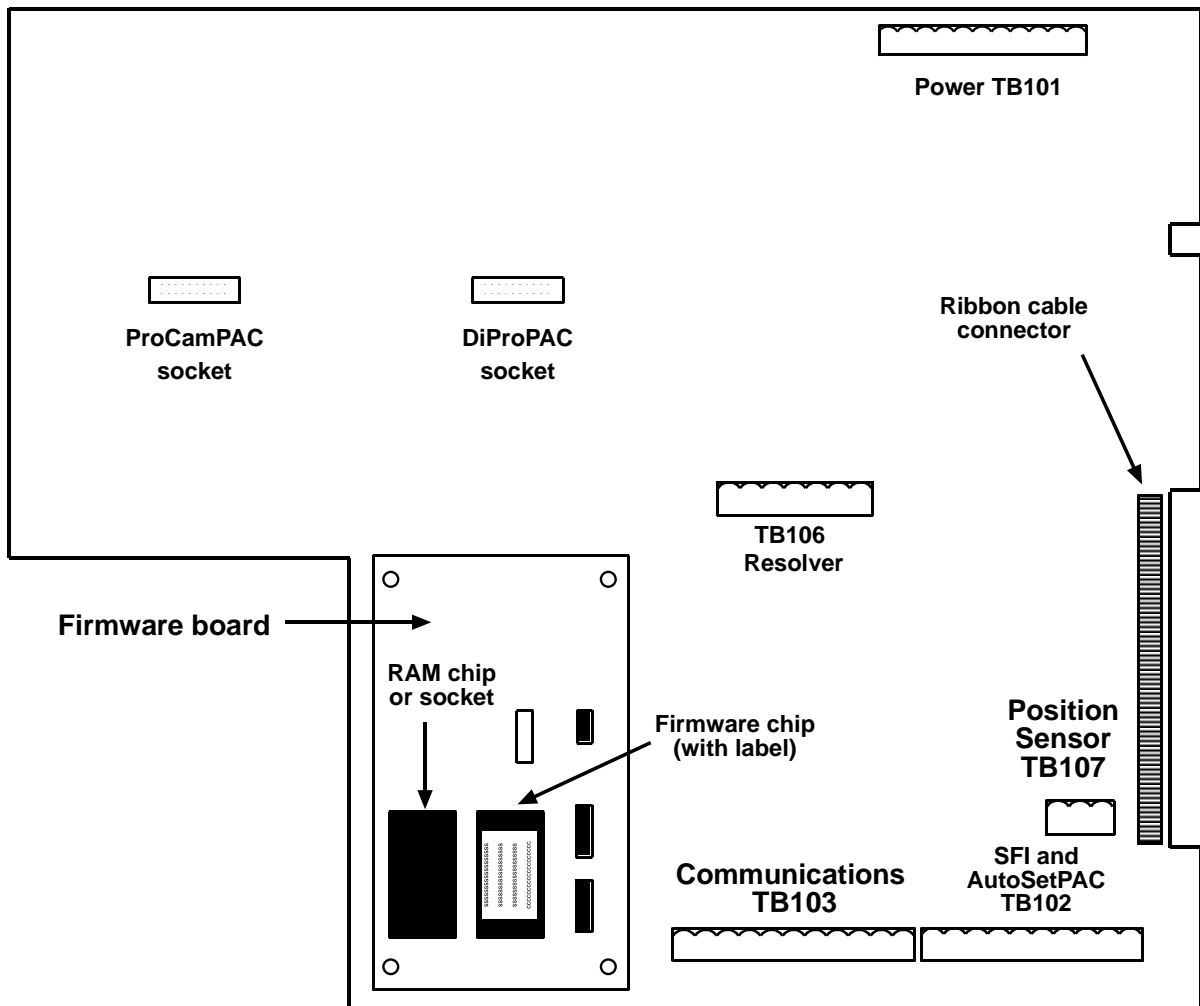


Figure 2-1. SmartPAC Processor Board: Location of Components

Wiring Your Servofeed to SmartPAC

WARNING

ELECTRIC SHOCK HAZARD

- Ensure that the power source is off before you touch any wiring inside the enclosure.
- Disconnect power from the machinery it is connected to before making any wiring connections. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

NOTICE

Wiring for your feed model

The wiring connections will depend upon your feed model. Refer to the wiring diagrams at the end of the manual.

To make wiring connections between SmartPAC and your servofeed, perform the following steps:

1. *Verify that SmartPAC and your feed are still turned OFF!* Locate the 10-pin connector and the black round cable with a large connector (DB9 or DB25 connector, depending upon the feed controller) on one end. The other end of the cable has three unattached wires (red, black, and shield). Check to make sure that you have the right connector for your feed – either male or female – as described in the wiring diagrams at the end of the manual.
2. Locate terminal TB102 on the SmartPAC processor board (see Figure 2-1), TB103 on the SmartPAC 2 processor board. Also find the RS-232 port on your feed. Refer to your feed manual if necessary.
3. Run the cable through a dedicated, flexible liquid-tight conduit from your feed to SmartPAC. SmartPAC is rated NEMA 12 (protected against dust and oil). You must use conduit of the same rating and make proper connections to ensure NEMA 12 protection.
4. Go to the RS-232 port on your feed first. If there is a cable already connected to this port, remove it. Some feeds will not have any cable attached to this port.
5. Plug the connector which is attached to the cable from SmartPAC into the feed's RS-232 port. It can only go in one way. Tighten the screws on the connector to hold it firmly in its socket. Also tighten all conduit connections.
6. Now go to SmartPAC. The end with the unattached wires goes to SmartPAC. Cut off any extra cable if necessary, and carefully remove the outer insulation and inner shielding on the cable in order to expose the wires. Strip insulation back 1/4" on each wire.

7. You will be connecting the two wires (with shield) to the 10-pin connector which you will attach to terminal TB102 on the SmartPAC (TB103 on the SmartPAC 2) processor board. Remember to refer to the wiring diagrams at the end of this manual.
8. To connect a wire, loosen the screws to your feed's terminal, as shown in Figure 2-2. (Also refer to the wiring diagrams.) Insert the bare part of the wire 90% of the way into the open slot. Retighten the screw, holding the wire firmly in place.

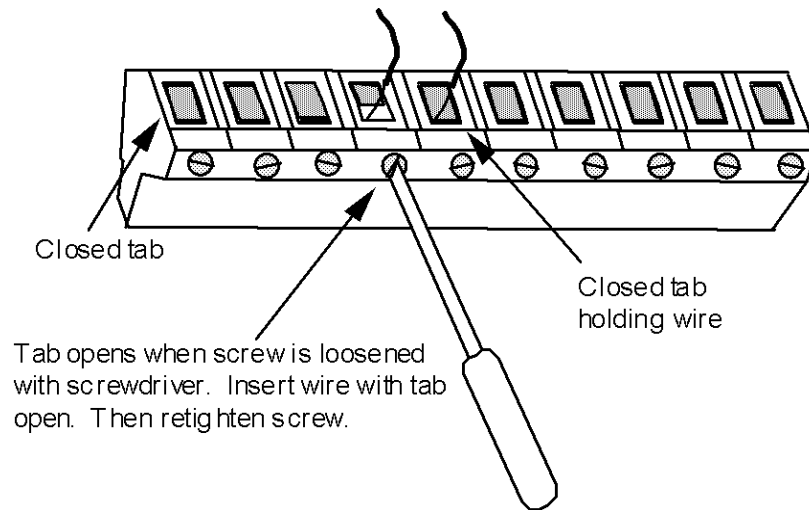


Figure 2-2. Attaching a Wire to a Connector

NOTICE

IMPORTANT — About wiring

When making wiring connections, be sure that the tab is tightened onto the bare part of the wire, not onto the insulation. If it is on the insulation, you will have a bad connection.

9. Add the jumper between terminals 235 and 240 on SmartPAC TB102 (SmartPAC 2 TB103).
10. Plug the 10-pin connector into TB102 (SmartPAC 2 TB103).
11. You are finished installing SmartPAC SFI. Close the SmartPAC enclosure and re-tighten the hardware. Turn power back ON to both SmartPAC and to your feed.
12. Check that SmartPAC is operating normally. If it is working properly, you are now ready to use SFI. Go to the next chapter to learn how to set up and operate your feed through SmartPAC. If the unit powers up with a garbled display or “rolling” LEDs, turn the power OFF and recheck how you installed your firmware. Review “Upgrading SmartPAC Firmware” on page 5. If the unit is still malfunctioning and you cannot find the reason for the problem, call Wintriss Tech Support for assistance.

Chapter 3

Using SFI Menus

In this chapter you will learn how to use SmartPAC SFI menus in Initialization, Program, and Run modes. You will learn how to:

- Set feed initialization parameters
- Set feed length
- Set percent acceleration
- Set maximum run speed
- Use the Feed Advisor
- Load feed settings
- Adjust feed parameters in Run mode

You will also learn how to troubleshoot your SmartPAC SFI.

NOTICE

IMPORTANT!

SmartPAC SFI works differently with the various models of servofeeds available. *All SFIs are not alike!* Some do not have Initialization mode, some do not have Feed Advisor, and some may not allow you to adjust parameters while the press is running. Programming choices may be different as well.

In this manual, we will present all the possible options available in SFI, but the available options for your SFI may be different!

Keep this in mind as you proceed!

About Tool Numbers

The terms “tool” and “tool number” will be used many times in this chapter. A tool number consists of all of the settings (including the servofeed settings) that you make for one job. You can save servofeed information for up to 200 tools and then recall the settings for each job whenever you need to.

Initialization Mode

NOTICE

IMPORTANT

This manual mentions certain parameters that you can modify at your feed. It does not, however, explain these parameters in any detail. Refer to your servofeed manual for more information.

To get into Initialization mode, turn the Program/Run key to “PROGRAM” and then press both the “1” and “CLEAR” keys at the same time for one second. (See “Using the Keyboard” in Chapter 3 of the SmartPAC User Manual.)

NOTICE

Before changing modes (for instance, from Initialization to Program), make sure your screen shows the first display in the mode you are in. If that display is not shown, nothing will happen when you turn the Program /Run key. In that case, keep pressing the RESET key. When the first display in the mode is reached, you will instantly switch to the new mode.

The first display in Initialization mode (the order of items may vary depending on installed options) is shown in Figure 3-1. On this display, select “FEED CONTROL”.

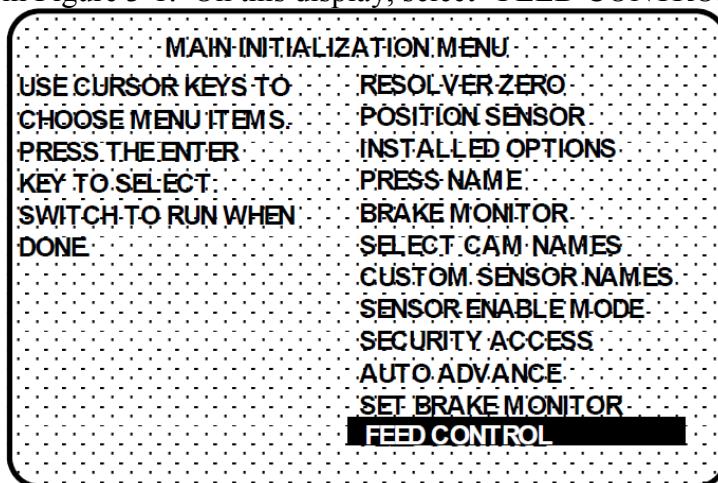


Figure 3-1. Main Initialization Menu with “FEED CONTROL” Selected

NOTICE

SELECT = HIGHLIGHT + ENTER

When you are instructed in this manual to “select” a menu item, you should use the cursor keys to highlight the item, then press the ENTER key. See Chapter 3 in the SmartPAC User Manual for more information.

When you select “FEED CONTROL,” the Feed Control Menu, shown in Figure 3-2, displays.

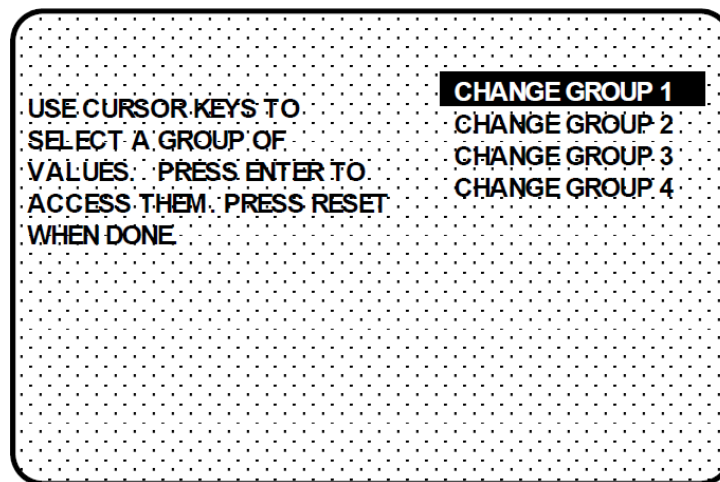


Figure 3-2. Feed Control Menu

NOTICE**Important!**

If you are interfacing with a *Reliance CTL* feed control, there will be a menu choice on the Feed Control Menu called "SCALE GROUP." Select "SCALE GROUP" and then choose "TIME BASE" to set the correct unit of measure for this feed – "/MIN" (SFI is initialized to "/SEC"). Make this selection and then press RESET to return to the Feed Control Menu and make other settings.

Change Groups

When you select "CHANGE GROUP 1," the parameters shown in Figure 3-3 display.

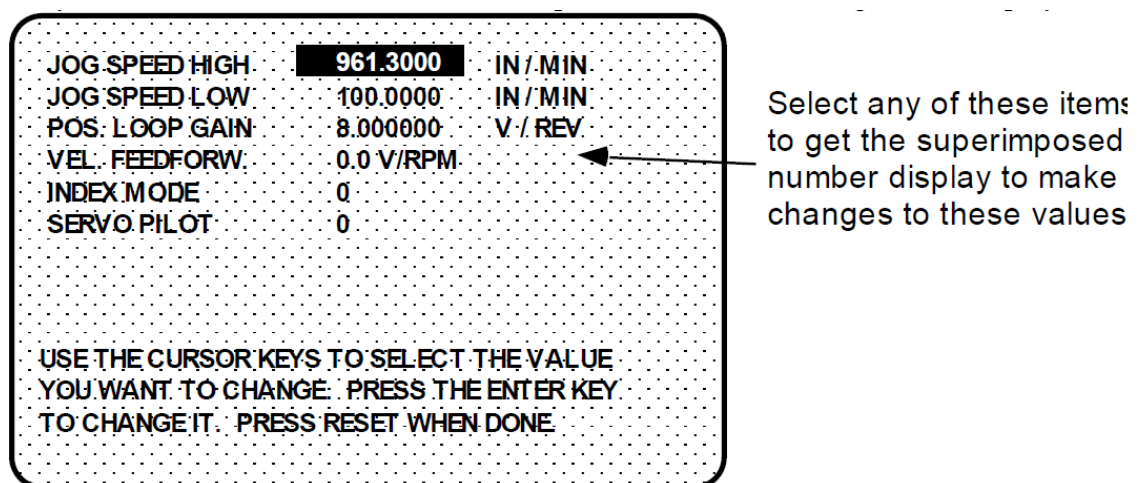


Figure 3-3. Change Group 1 Display

Notice that there will be actual values appearing on the screen. These values are coming directly from your servofeed. Select the item you want to change.

In the example shown in Figure 3-3, we have chosen “JOG SPEED HIGH.” When you select a parameter, a window like that shown in Figure 3-4 displays.

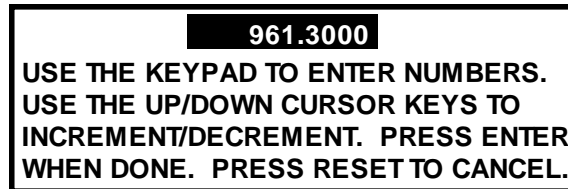


Figure 3-4. Change Parameters Window

As instructed in the window, you use the number keys to input numeric values for SFI parameters and the UP and DOWN cursor keys to increment or decrement values. When you are done, press ENTER. SmartPAC will accept the number and move on to the next display. SmartPAC accepts numbers up to seven digits in length. Refer to Chapter 3 of the SmartPAC User Manual if you are not sure how to use the number display.

When you are done with all the parameters on the “Change Group 1” display, press the RESET key to return to the Feed Control Menu.

If you want to change any of the other groups (2 through 4), select that item on the Feed Control Menu and follow the previous steps. Figure 3-5 shows the menu items in each of these displays.

Remember that when you are done changing parameters on any of these displays, press the RESET key to return to the Feed Control Menu.

The next section explains how to use “Check Setup,” another item on the Feed Control Menu.

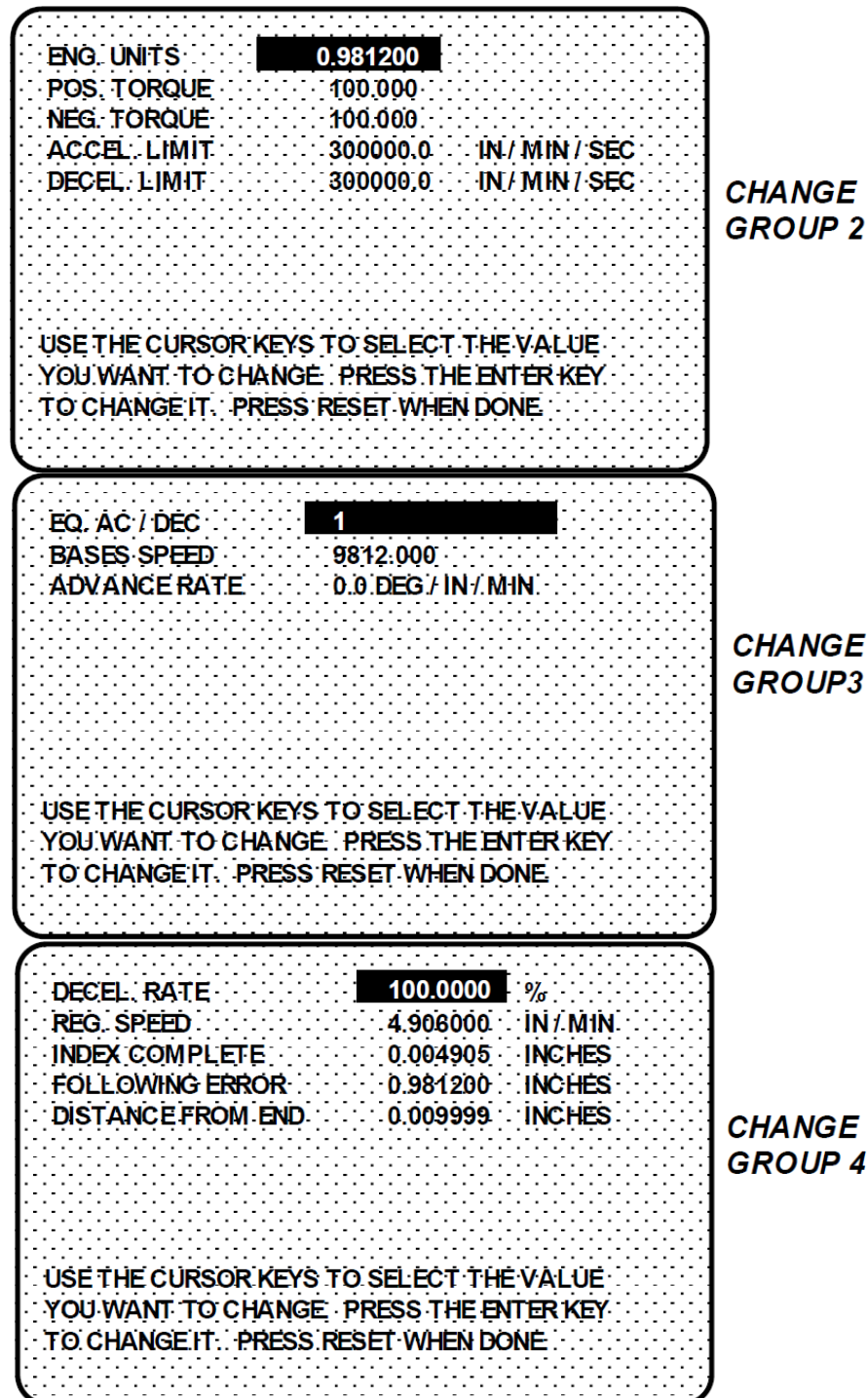


Figure 3-5. Displays for Change Groups 2 through 4

Check Setup

When you select “Check Setup,” you will see the display shown in Figure 3-6.

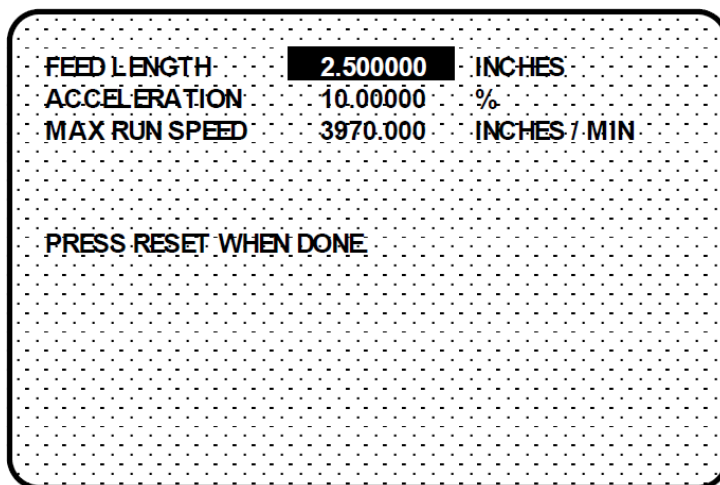


Figure 3-6. Check Setup Display

“Check Setup” is a diagnostic tool available in SFI that allows you to view the feed parameters on your servofeed. It gives you an opportunity to make sure that these parameters match your currently loaded setup.

Notice that you cannot change any of these items. This display is for viewing purposes only.

When you are done looking at the information on the screen, press the RESET key to return to the Feed Control Menu, then press RESET again to go back to the Main Initialization Menu.

Security Access

You use the “SECURITY ACCESS” item on the Main Initialization Menu to lock out “ADJUST FEED” so that unauthorized personnel cannot adjust feed settings in Run mode.

Locking Adjust Feed

To prevent unauthorized personnel from unlocking “ADJUST FEED,” you must remove the Program/Run key once SmartPAC is switched to Run mode. This will prevent unauthorized access into the Initialization or Program modes, so that feed settings cannot be unlocked or altered. The key has to be positioned at “PROGRAM” to get into these modes.

Select “SECURITY ACCESS” from the Main Initialization Menu to display the Security Access Menu, which is shown in Figure 3-7. Select the “PROGRAM AND RUN MODES” item to the right of the “ADJUST FEED” action. This is the default setting made at the factory and allows feed adjustments to be made in both Program and Run modes.

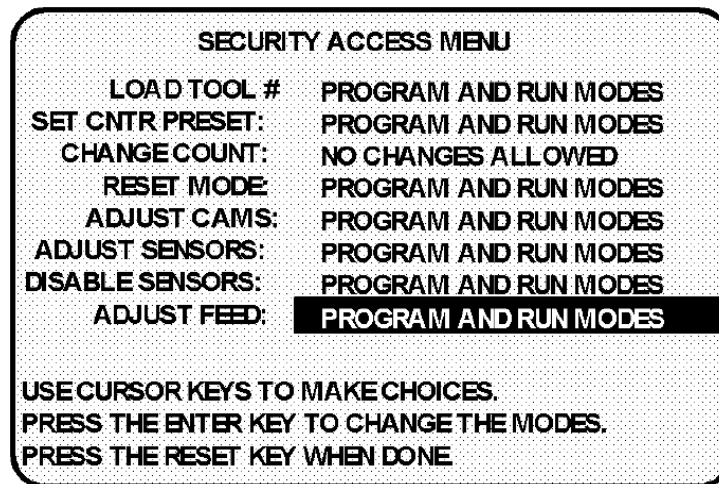


Figure 3-7. Security Access Menu with Feed Adjustment Set for both Program and Run Modes

To lock out the “ADJUST FEED” action so that it cannot be taken in Run mode, press the ENTER key with “PROGRAM AND RUN MODES” highlighted. The item to the right of “ADJUST FEED” changes to “PROGRAM MODE ONLY,” as shown in Figure 3-8, indicating that the feed controller can now be adjusted in Program mode only.

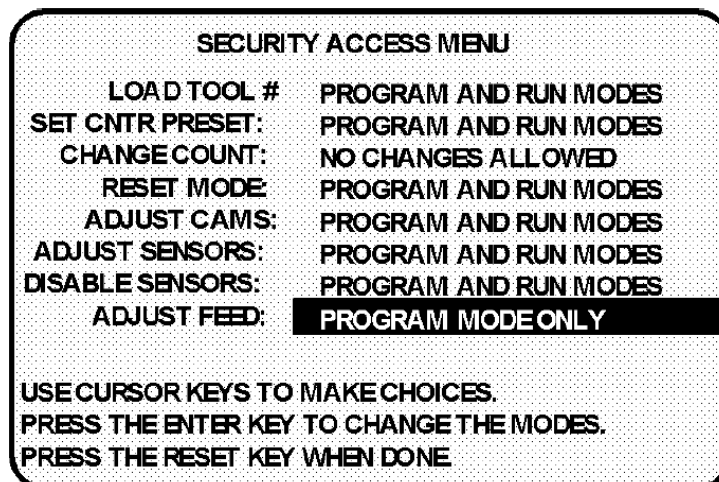


Figure 3-8. Security Access Menu with Feed Adjustment Set for Program Mode Only

If you do not want to make a change, press RESET to go back to the Main Initialization Menu.

Viewing Communications with the POSITION SENSOR Item

The “POSITION SENSOR” item on the Main Initialization Menu allows you to verify communications between SmartPAC and your feed controller. When you select “POSITION SENSOR,” the screen shown in Figure 3-9 displays.

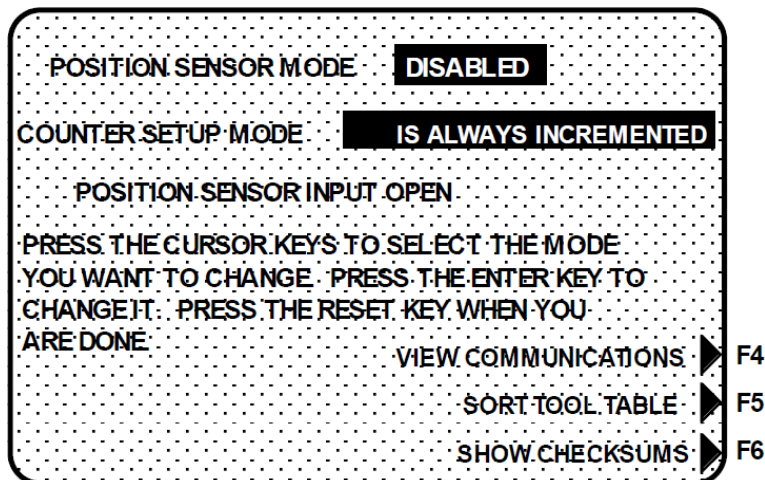


Figure 3-9. “Position Sensor” Display in Initialization Mode

Press function key **F4** (“VIEW COMMUNICATIONS”) to display the Communication Data Viewer screen, shown in Figure 3-10.

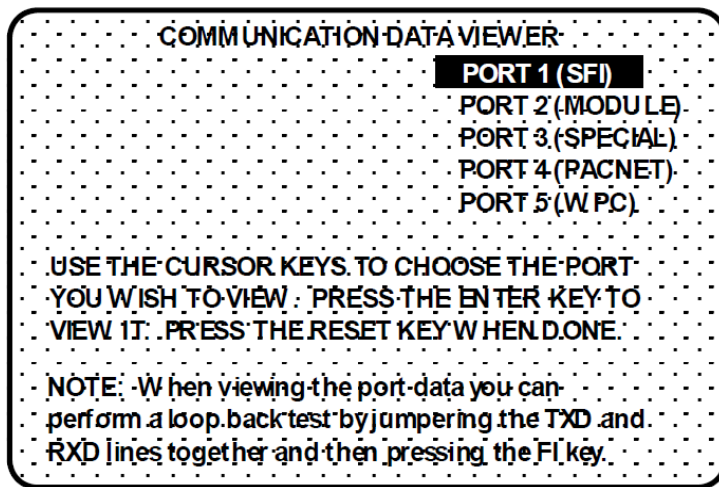


Figure 3-10. Communications Data Viewer Screen

Select “PORT 1 (SFI)” on the Communication Data Viewer Screen. The display shown in Figure 3-11 (next page) will appear.

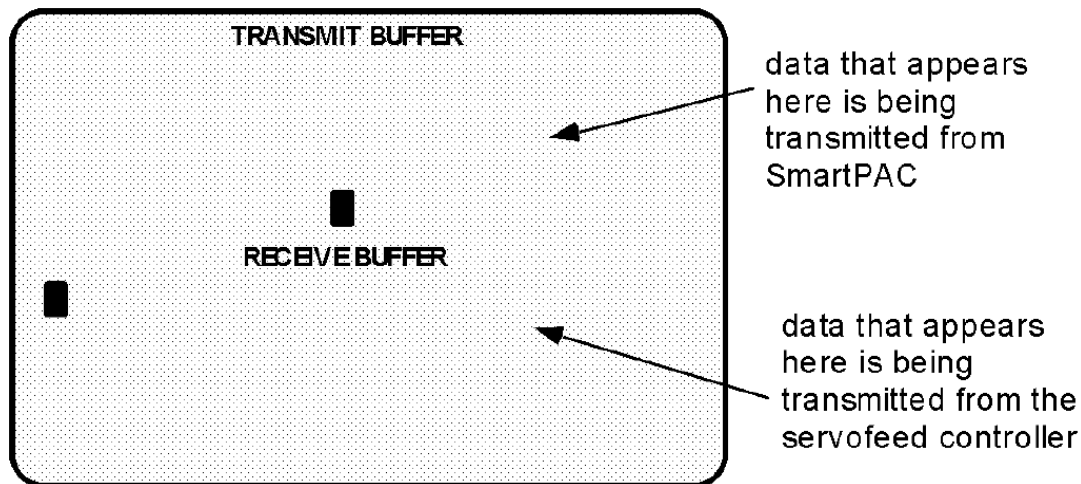


Figure 3-11. Communications Transmit/Receive Buffer Display

If SmartPAC and the servofeed controller are communicating normally, you should expect to see some text (data) in both the “TRANSMIT BUFFER” and “RECEIVE BUFFER” portions of the screen. If you do not see any data (or only partial data), this means that SmartPAC and the servofeed controller are not communicating properly.

At this point if you detect a problem in communications, you may decide to perform a “loop-back test.” A loop-back test is one where you connect (or jumper) the TXD (Transmit) and RXD (Receive) lines together (refer to Figure 13 at the end of this manual), and then press **F1** to check communications. In effect, you are actually “receiving” the communications data that you are transmitting. This test is useful when verifying the accuracy of the transmit and receive hardware and wiring. If you need further assistance or direction on performing the loop-back test, contact Wintriss Tech Support.

Program Mode

You enter Program mode by turning the Program/Run key to “RUN” and then back to “PROGRAM.” Next, select a tool number to modify, and then select “MODIFY THE TOOL NUMBER INFORMATION.” If you are not sure how to do this, refer to Chapter 5 in the SmartPAC User Manual.

Once you have selected a tool, the Main Programming Menu, shown in Figure 3-12 (next page), will display. The Main Programming Menu displays the various settings you can make for the selected tool (the order of items may vary depending on installed options).

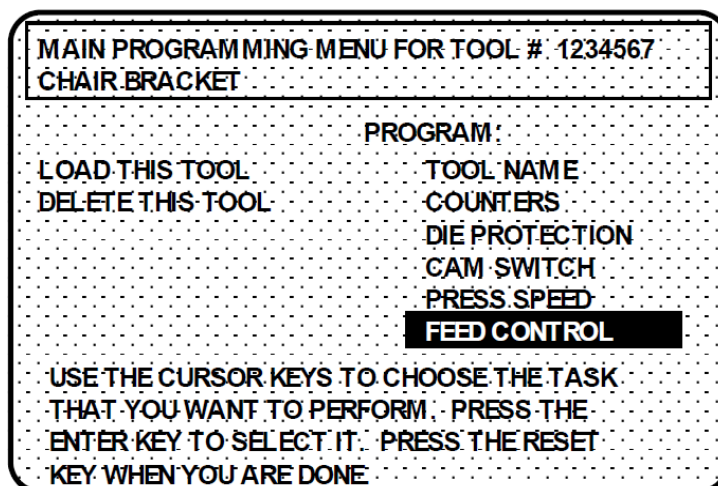


Figure 3-12. Main Programming Menu with “FEED CONTROL” Selected

Select “FEED CONTROL” to display the Feed Parameters screen (see Figure 3-13). This screen may display up to four choices. The selections on your screen may vary depending upon your servofeed model.

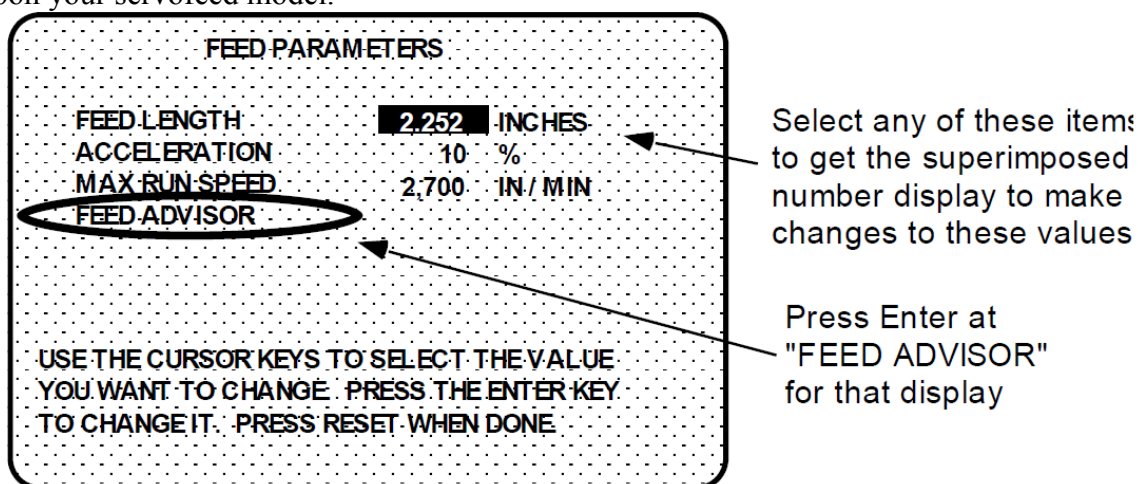


Figure 3-13. Feed Parameters Screen

NOTICE

Read your servofeed manual before making settings!

Consult your servofeed manual for any requirements you must meet for feed length and other settings. Remember, SmartPAC does not change the way your servofeed operates or any parameters or limitations built into your servofeed. Be sure you have read your servofeed manual and understand how your servofeed works before making any settings.

Feed Settings

When you select “FEED LENGTH” on the Feed Parameters screen, a number display similar to that in the Change Parameters Window (see Figure 3-4) appears, allowing you to set or change the feed length value. Use the number keys to input a desired feed length, or the UP and DOWN cursor keys to increment and decrement a displayed value.

When you are done, press ENTER. SmartPAC will accept the number and move on to the next display. SmartPAC accepts numbers up to seven digits in length. Go to Chapter 3 of the SmartPAC User Manual if you are not sure how to use the number display.

When you select any of the remaining feed parameters, the same number display will appear. If you have Feed Advisor and plan to use it, you do not need to set acceleration rate and maximum run speed. Remember! Read your servofeed manual before making feed settings!

If you wish to leave this screen without making any changes, press RESET.

NOTICE

MORE ABOUT YOUR SERVOFEED SETTINGS

The *acceleration rate* governs how fast the servofeed will accelerate to its set run speed. Your servofeed has a built-in maximum acceleration. The acceleration rate is a percentage of this maximum. For instance, a setting of 80% means the servofeed will accelerate to run speed at 80% of its maximum capability. Your press servofeed may have a minimum acceleration rate. Refer to your servofeed manual for more information about the acceleration rate. Follow all guidelines given there when making acceleration rate settings.

Maximum Run speed is usually displayed in inches/min. Follow all guidelines in the servofeed manual to make proper settings for run speed.

Keep in mind that you can optionally use the *Feed Advisor* to automatically calculate the acceleration rate for you (if it is available with your servofeed).

Feed Advisor

NOTICE

Feed Advisor is not available with all servofeed models.

Feed Advisor is a convenience which saves you the time of calculating the acceleration rate and maximum Run speed yourself. SmartPAC SFI does the work for you. When using Feed Advisor, you need to enter feed length, feed arc (number of crankshaft degrees available to fully feed the material), and press speed. SmartPAC SFI calculates the acceleration rate assuming the lowest acceleration rate to fully feed the material by the end of the feed arc. When determining this rate, take into consideration the feed initiate angle, which may be programmed as one of the cam timings in SmartPAC (not SFI).

Make sure that you know the actual number of degrees needed to feed up the material, and be careful to set the feed initiate angle correctly. Otherwise, you may endanger the die. For example, if a 225-degree feed arc is assumed in the Feed Advisor but only 220 degrees is truly available to be fed up, punch engagement may occur before the feed is complete and a die crash may occur.

Using Feed Advisor

Let's say your feed length is 2.252 inches, the number of degrees you have to feed in is 225° with the feed initiate ON angle set at 260°, and the press speed is 150 SPM. To use Feed Advisor to calculate acceleration rate and maximum Run speed based on these values, you would proceed as follows.

Select "FEED ADVISOR" on the Feed Parameters screen (see Figure 3-13). The Servo Feed Advisor screen, shown in Figure 3-14, displays.

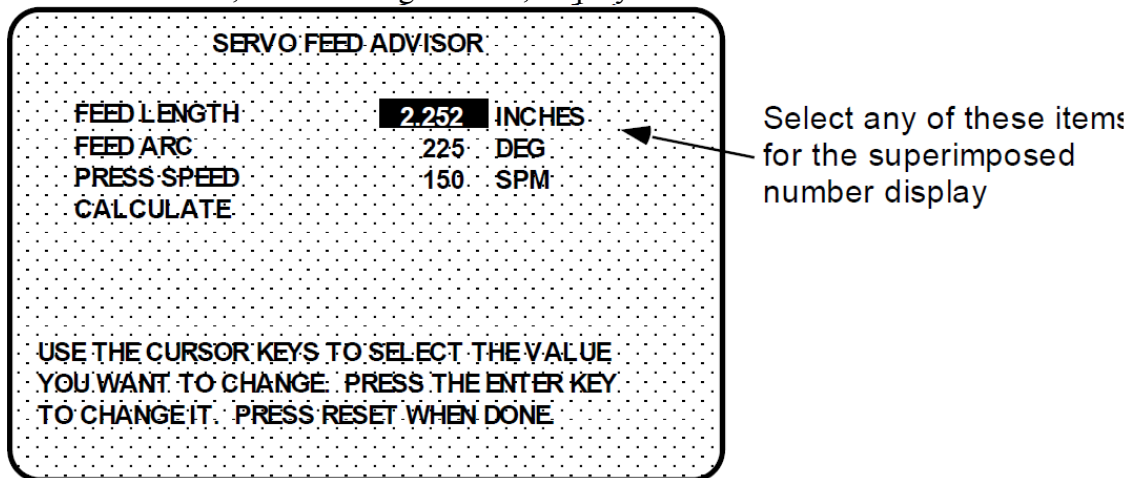


Figure 3-14. Servo Feed Advisor Screen

Select "FEED LENGTH" on the Servo Feed Advisor screen, and, using the number and/or cursor keys in the window that displays (see Figure 3-4), enter the feed length (e.g., 2.252) and press ENTER. Repeat these steps for "FEED ARC" and "PRESS SPEED." If your press is a variable speed unit, enter the press speed that you will use for the job.

When you have finished entering these values, select "CALCULATE." The message "PLEASE WAIT...CALCULATING VALUES" displays briefly at the bottom of the Servo Feed Advisor screen (see Figure 3-15, next page), indicating that the Feed Advisor is calculating your acceleration rate and maximum Run speed.

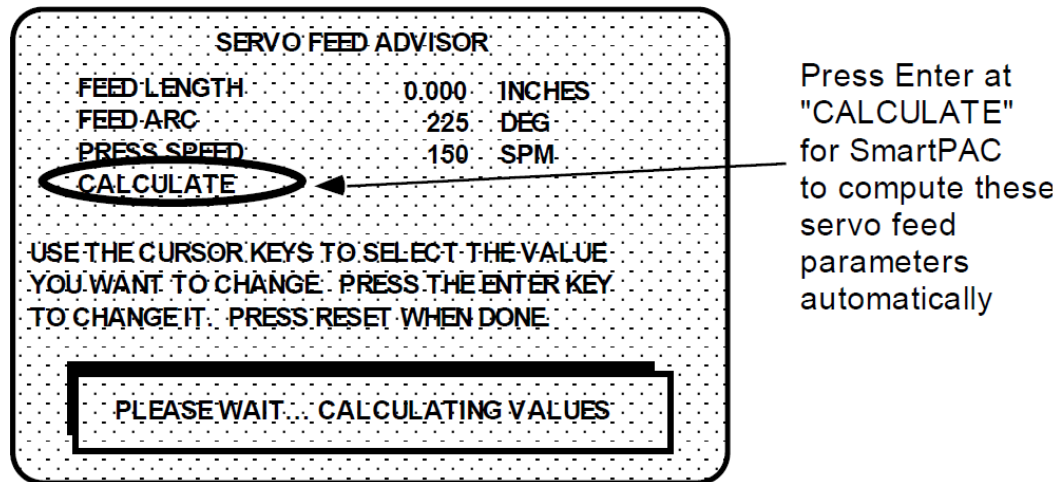


Figure 3-15. Servo Feed Advisor Screen with “Calculating” Message

Before displaying its calculations, Feed Advisor displays messages indicating whether the feed length and feed arc you entered are valid for the specified press speed. For instance, if Feed Advisor determines that the feed has plenty of time to complete based on the values entered, you will see this message at the bottom of the Servo Feed Advisor screen:

*THE MATERIAL WILL BE FED UP WELL BEFORE
THE FEED ARC IS COMPLETED.*

This means that the feed will end well before the end of the feed arc you have entered even when it is operating at the lowest speed specified in Initialization.

The following message

*THE MATERIAL WILL BE FED UP JUST AS
THE FEED ARC IS COMPLETED.*

indicates that the feed will end just as the feed arc is completed. This is the optimum condition because feed never has to reach the maximum speed specified in Initialization.

If you entered values that will not allow the feed to complete before the end of the feed arc, you will see this message:

*THE MATERIAL CANNOT BE FED UP IN TIME.
MORE TIME MUST BE ALLOWED.*

In this case, recheck your values. It might just be a matter of lengthening the feed arc if that will not affect other actions, such as part transfer or part cut off. If you choose to lengthen the arc, make sure that you reprogram the cam angle to initiate the feed earlier. If you cannot do that, your other option is decreasing press speed. In any case, revise your figures if SmartPAC gives you a warning, then “calculate” acceleration and maximum Run speed again.

When the message displayed by Feed Advisor indicates that the values you inputted are acceptable, press the RESET key. You are returned to the Feed Parameters screen (see Figure 3-16), on which Feed Advisor has refreshed the values in the “ACCELERATION” and “MAX RUN SPEED” fields based on the values you entered on the Servo Feed Advisor screen. In the example shown in Figure 3-16, the acceleration rate is 40%. This means that the feed is comfortably within an acceptable acceleration range and maximum Run speed.

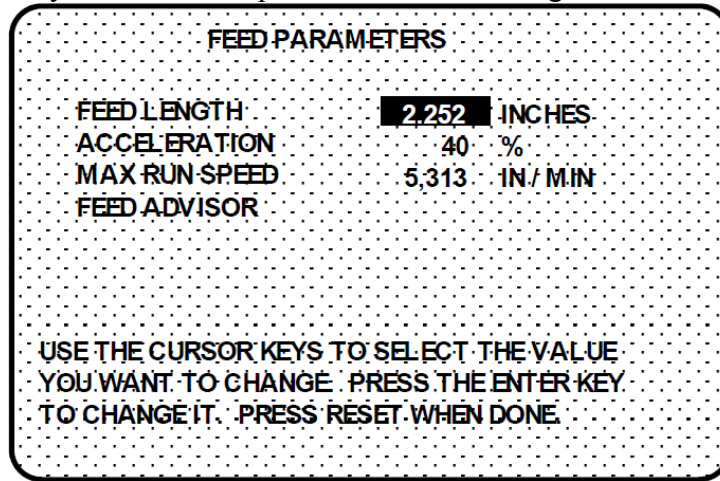


Figure 3-16. Feed Parameters Screen with New Acceleration and Max Run Speed Values Displayed

NOTICE

ABOUT USING FEED ADVISOR

You can use Feed Advisor (if available with your servofeed) any time that you want SmartPAC to calculate the acceleration rate and maximum run speed for you. If you want to manually enter your own feed parameters, select “ACCELERATION” and “MAX RUN SPEED” on the “Feed Parameters” screen.

Remember to program the “Feed Initiate angle” as the “on” angle of the “Feed Advance” cam in SmartPAC ProCamPAC!

Load by Tool Number

You can automatically load feed settings by tool number. To load a tool number, press RESET twice, the first time to exit from the “Feed Parameters” display and then again to get to the “Load Tool Number” screen. Press ENTER to load (or RESET to back out). You will get a message like the following which confirms that you have successfully loaded the tool (your tool number may be different):

Please Wait ... LOADING TOOL 1

Loading by tool number is covered in Chapters 5 (Program mode) and 6 (Run mode) of the SmartPAC User Manual.

Run Mode

NOTICE

REMEMBER!

SmartPAC SFI works differently with the various models of servofeeds available. Your servofeed may not allow feed setting adjustments.

While you are running the press, SmartPAC will operate the servofeed based on the settings you made in Program mode. In some cases, you can make minor adjustments to the currently loaded tool number.

To use Run mode, turn the Program/Run key to “RUN.” The Run Menu, shown in Figure 3-17, displays (the order of items may vary depending on installed options):

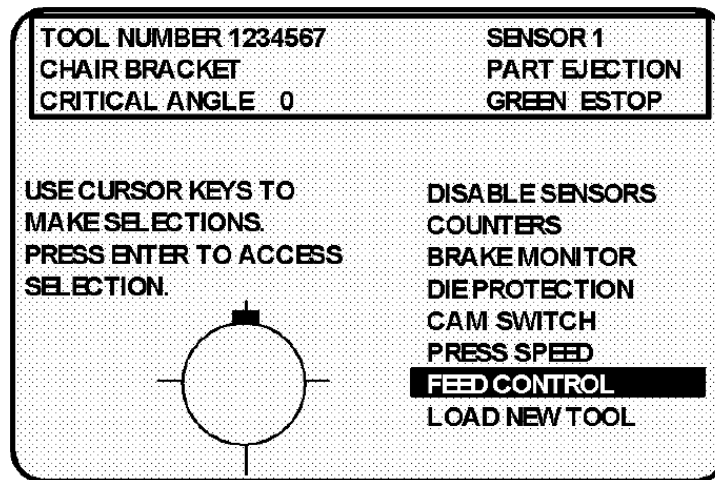


Figure 3-17. Run Menu

To adjust feed settings, select “FEED CONTROL.” The display shown in Figure 3-18 appears..”

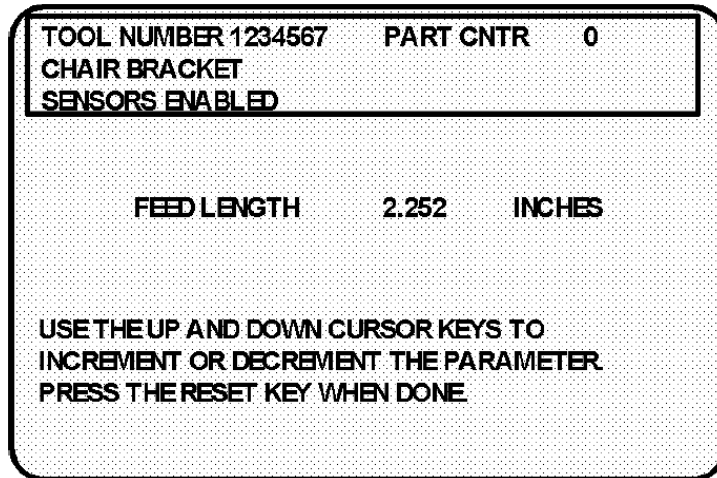


Figure 3-18. Feed Length Adjustment Display

To make minor adjustments to feed length, use the UP and DOWN cursor keys to increment and decrement the value displayed in the FEED LENGTH field. Notice that as you press either key, the value changes by .001 inch (1/1000) or less. This adjustment is sent directly to the servofeed and is immediately saved to the currently loaded tool. Be sure to make a note of this change on your feed setup sheet for future reference. Press the RESET key to exit from this display.

Troubleshooting

Whenever SmartPAC and the feed control unit are not communicating successfully, the message shown in Figure 3-19 will appear on the LCD.

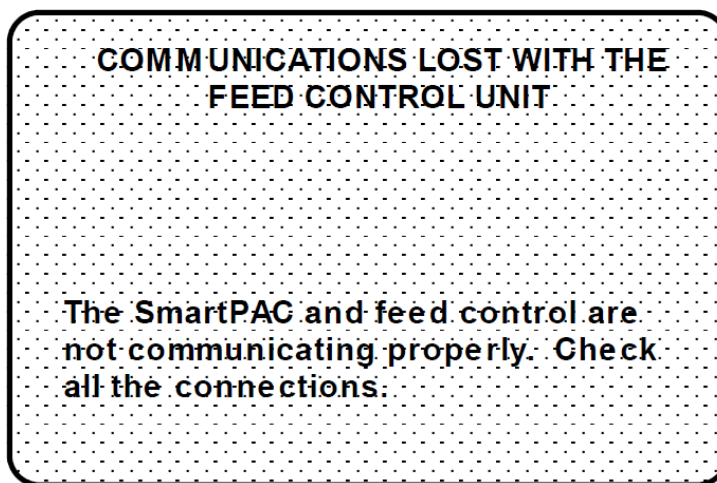


Figure 3-19. Communications Fault Message

When you get this message, check that all wiring connections are intact. Refer to Chapter 2 to verify correct installation if necessary. Also refer to the section “Viewing Communications with the POSITION SENSOR Item,” page 18, to actually observe the communications link between SmartPAC and your feed controller. Contact Wintriss Tech Support for help in interpreting the screen and conducting loop-back tests.

Once communications is restored, you will no longer see this fault message.

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Wintriss Manuals

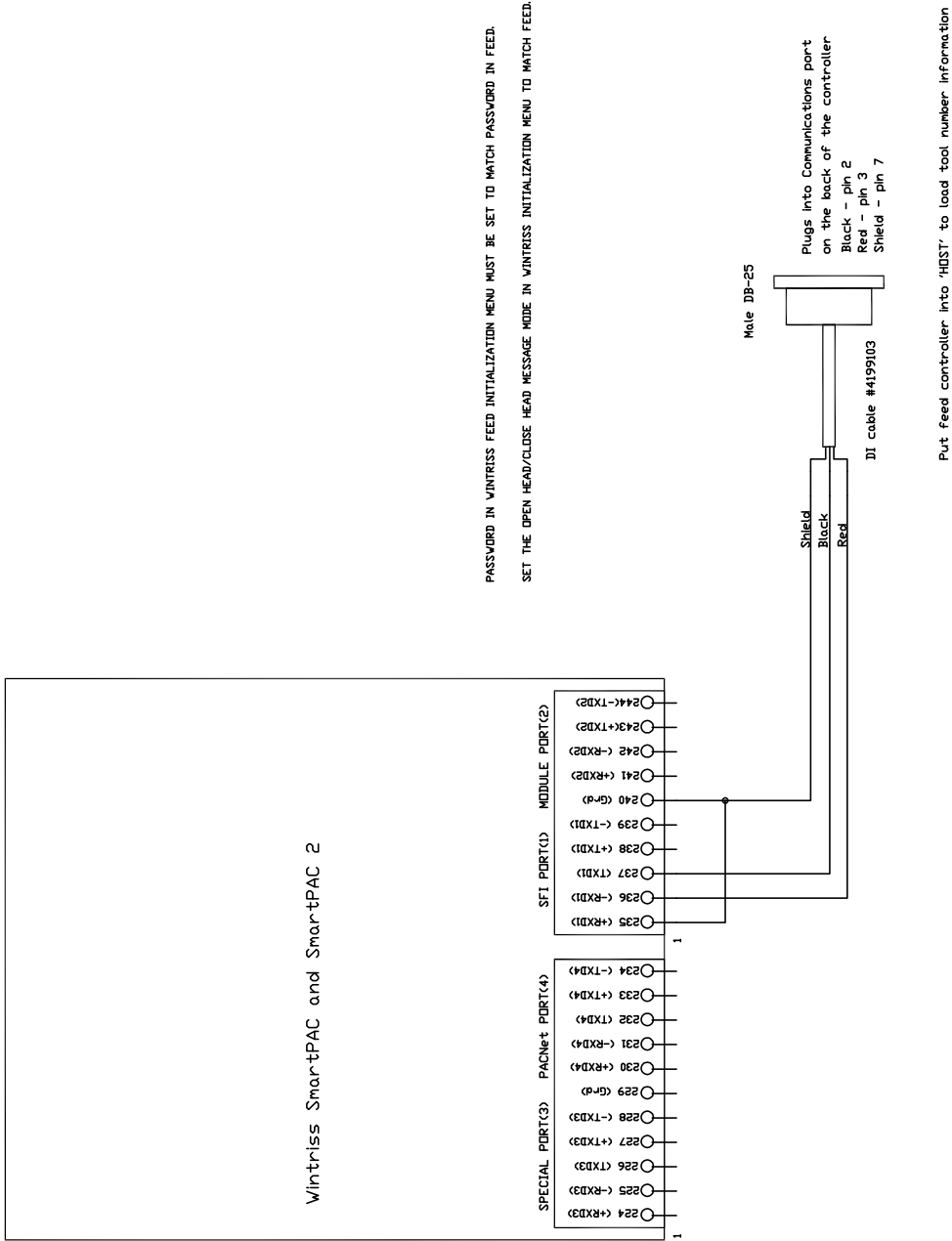
Wintriss Product	Installation Manual Doc. No.	User Manual/CD Doc. No.
AutoSet (1500, 1500 Plus, 1504, 1504 Plus)	DA71747	DA71447
AutoSetPAC (Tonnage Monitor)	DA71413	DA71443
Die Protection Handbook	N.A. *	1130300 *
DiPro 1500	DA71428	DA71447
DSI 2 Sensor Interface	N.A. *	DA66970 *
LETS Machine Interface (LMI)	N.A. **	DA71974 **
MultiPAC Types 1 and 2	DA71409	DA71443
MultiPAC Types 4 and 5	DA71410	DA71443
ProCam 1500	DA71430	DA71447
ProPAC (Process Monitor – In-die Measurement)	DA71411	DA71443
RamPAC (Shut Height, Counterbalance & Cushion Control)	DA71412	DA71443
Servofeed Interface – Coe/Wintriss	DA71415	DA71443
Servofeed Interface – CWP/Wintriss	DA71416	DA71443
Servofeed Interface – DiPro 1500	DA71429	DA71447
Servofeed Interface – Electrocraft/Wintriss	DA71417	DA71443
Servofeed Interface – Indramat/Wintriss	DA71418	DA71443
Servofeed Interface – ProCam	DA71431	DA71447
Servofeed Interface – SmartPAC	DA71420	DA71443
Servofeed Interface – Waddington/Wintriss	DA71419	DA71443
SFC Machine Interface (SMI)	N.A. **	1140800 **
Shadow V Safety Light Curtain	DA71433	DA71449
Shadow VI Safety Light Curtain	DA71422	DA71445
Shadow VII Safety Light Curtain	N. A. *	1129400 *
Shadow 8 Safety Light Curtain	N. A. *	1139300 *
SmartPAC (w/ DiProPAC & ProCamPAC)	DA71439	DA71454
SmartPAC Hydraulic	DA71435	DA71451
SmartPAC Run Mode (Spanish)	N. A. *	DA71443
SmartPAC w/ WPC II Integration	DA71440	DA71455
SmartPAC 2 (w/ DiProPAC & ProCamPAC)	DA71406	DA71441
SmartPAC 2 Hydraulic	DA71436	DA71451
SmartPAC 2 Servo	DA71437	DA71452
SmartPAC 2 w/ WPC 2000 Integration	DA71407	DA71442
SmartPAC 2 w/WPC 2000 Run Mode (Spanish)	N. A. *	DA71443
WaveFormPAC (Advanced Load Analyzer)	DA71414	DA71443
Wintriss Brake Monitor	DA71432	DA71448
Wintriss Clock Display	N. A. *	DA67206 *
WPC II Wintriss Press Control	DA71438	DA71453
WPC 1000 Wintriss Press Control	DA71423	DA71446
WPC 2000 Wintriss Press Control	DA71421	DA71444
WPC 2000 Option 2	DA71408	DA71442

* Installation Manual not available; User Manual available in hard copy only. Die Protection Handbook available in hard copy (1102400) and on CD (1130300).

** Installation Manual not available. User Manual available for downloading.

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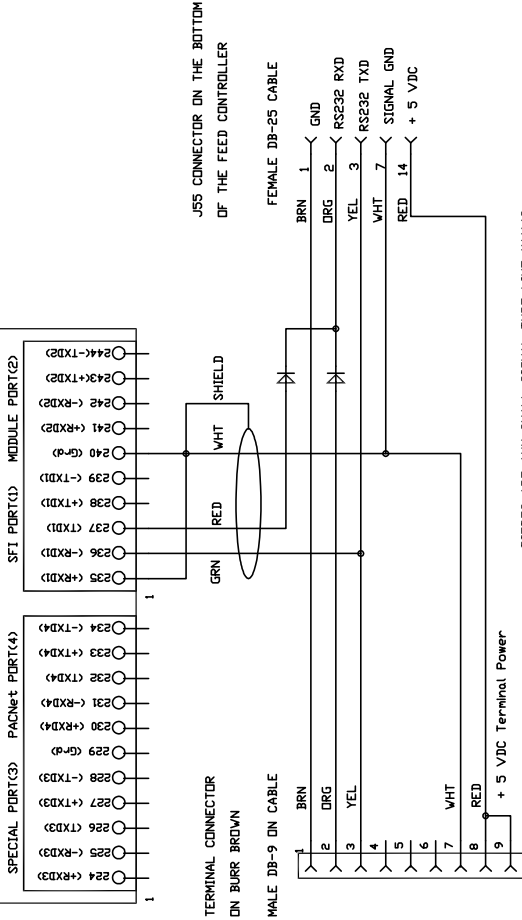
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Wintriss SmartPAC and SmartPAC 2



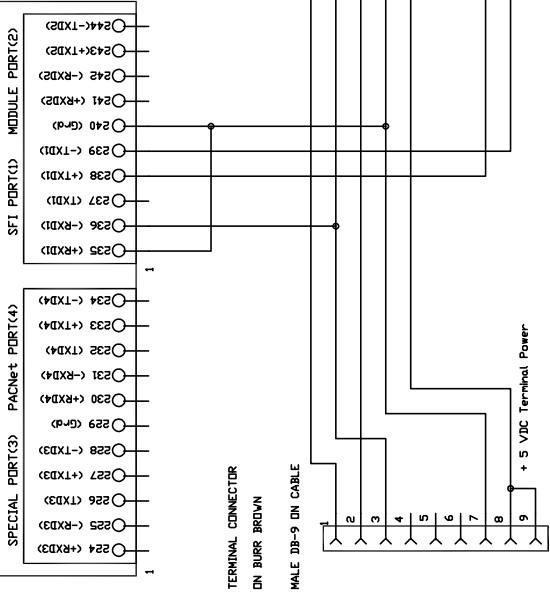
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CHK.							
APPROVALS				TITLE SmartPAC to DYNAMIC MODEL 450 Feed Controller Wiring Diagram			
ENGR.							
MFG.							
FILENAME				CODE IDENT NO.	SIZE C	DRAWING NUMBER FIGURE 2	REV
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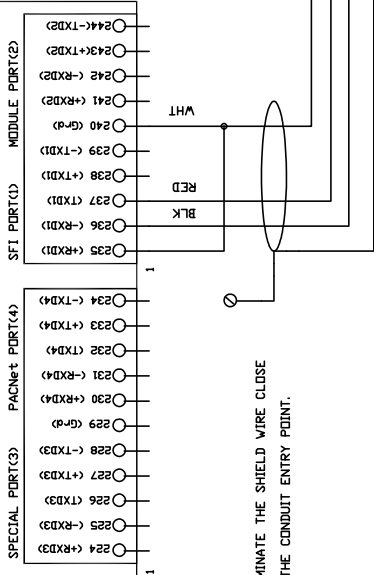


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TITLE				
SmartPAC to DYNAMIC MODEL 750				
Feed Controller Wiring Diagram				
CODE IDENT NO.		SIZE	C	REV
FILENAME		DRAWING NUMBER	FIGURE 3	REV
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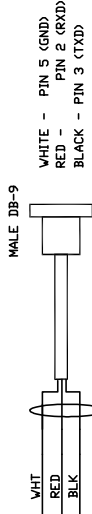
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Wintriss SmartPAC and SmartPAC 2



THIS CONNECTOR PLUGS INTO CN3B (DIF1 PORT)
ON THE FRONT OF THE ALLEN BRADLEY ULTRA 5000.

TERMINATE THE SHIELD WIRE CLOSE
TO THE CONDUIT ENTRY POINT.



WINTRISS CABLE #4199106

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		TITLE			
		SmartPAC to Minster AB Ultra 5000			
		Feed Controller Wiring Diagram			
		CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
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Wintriss SmartPAC and SmartPAC 2

NOTE FOR THE P/A SFI:

The baud rate must be set to 9600 baud to communicate properly with the SmartPAC.

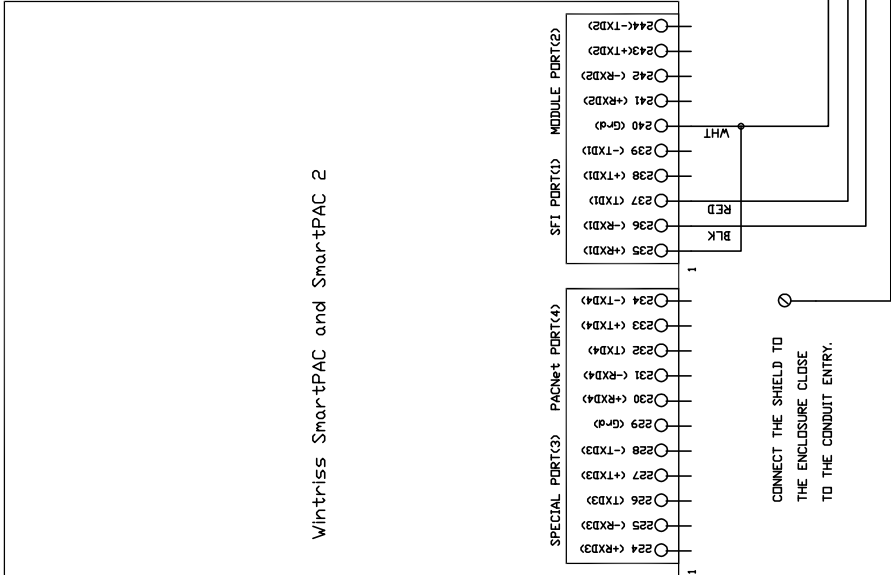
For Touch Screen systems:

Go into the P/A user display setup parameters screen. Under the communications port select 'Other'. This will select 9600 baud rate.

For older non-touch screen systems:

The baud rate is set to 9600 baud by putting a jumper wire from the drive input CNIA/18 to terminal #8 (+24 VDC) on the back plate of the control enclosure.

THIS CONNECTOR PLUGS INTO CN3A MAIN SERIAL PORT ON THE FRONT OF THE ALLEN-BRADLEY ULTRA 5000. THE SMARTPAC COMMUNICATES AT 9600 BAUD.



DI cable #4199109

DRAWN		DATE	WINTRISS CONTROLS GROUP			
ADB		4/27/13				
CHK.						
		APPROVALS	TITLE			
ENG.			SmartPAC to P/A and Littell Ultra			
MFG.			Feed Control Wiring Diagram			
FILENAME			CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
REL				C	FIGURE 5	
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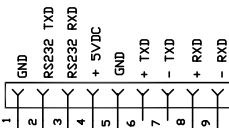
Wintriss SmartPAC and SmartPAC 2

TO ENABLE THE WINTRISS SFI COMMUNICATIONS
THE JUMPER WIRE BETWEEN J56 PIN 6 AND THE
COMMON WIRE #8 MUST BE REMOVED.

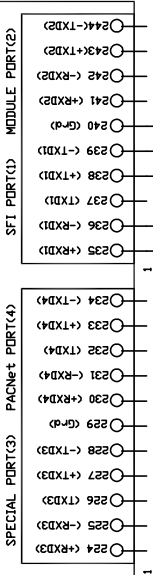
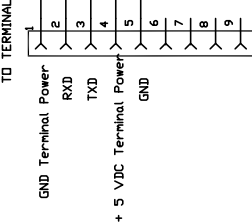
REMOVING THIS JUMPER DISABLES THE JOB
NUMBER ENTRY MODE OF THE RAPID-AIR
FEED CONTROL. THE WINTRISS FEED INFORMATION
GOES INTO JOB #99.

J58 CONNECTOR ON THE FRONT
OF THE FEED CONTROLLER

MALE DB-9 CONNECTOR



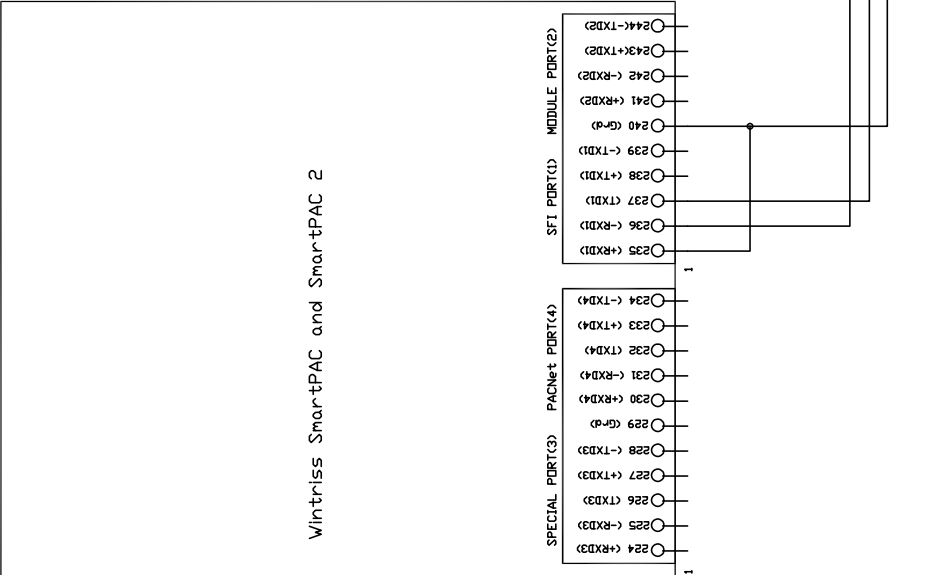
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			7/20/10				
APPROVALS				TITLE			
ENG.				SmartPAC to Rapid-Air Feed Controller			
MFG.				Wiring Diagram DB-9 CONNECTOR			
FILENAME				CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
REL					C	FIGURE 6	
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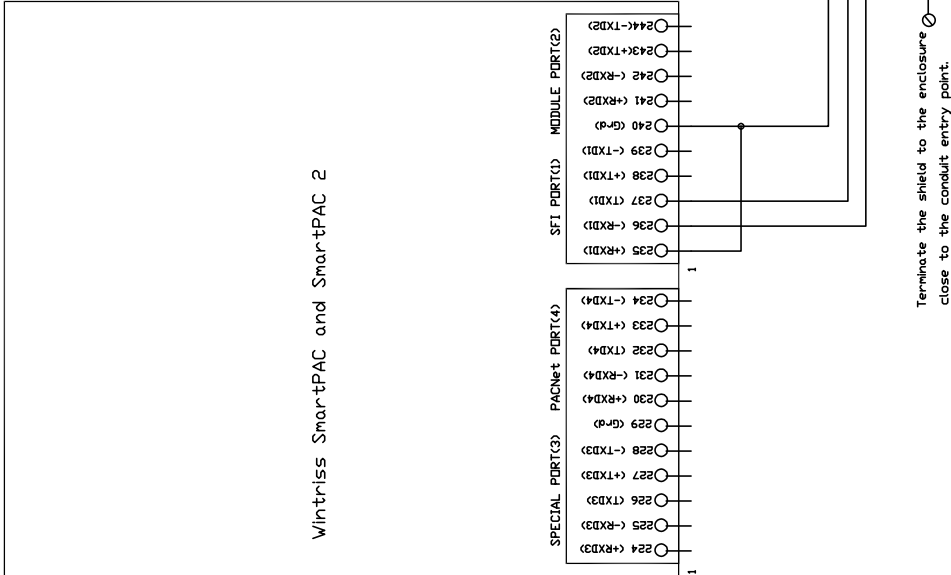
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ADB	7/20/10			
CHK.				
APPROVALS		TITLE		
ENG.		SmartPAC to Reliance Cut-to-length Feed Controller Wiring Diagram		
MFG.				
FILENAME				
REL		CODE IDENT NO.	SIZE	REV
			C	FIGURE 7
SCALE		SHEET OF		

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APPROVALS			
ENG.			
MFG.			
FILNAME			
REL			

WINTRISS CONTROLS GROUP			
TITLE			
SmartPAC to Vanco Feed Controller Wiring Diagram			
CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
	C	FIGURE 8	
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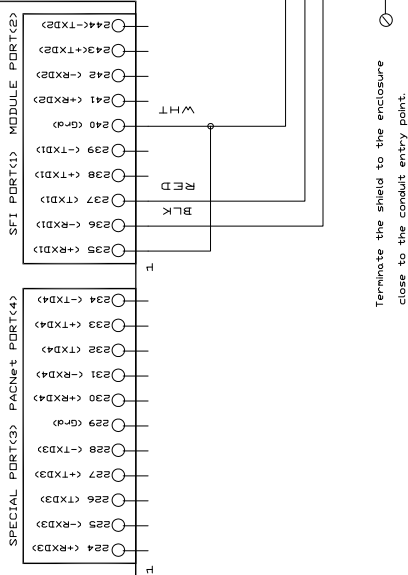
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Wintriss SmartPAC and SmartPAC 2

Control Option: Disabled
Data Option: ModBus

Connect to IF1: RS232 connector closest to the 24 VDC power connector.

B&R control panel receives data on pin 2, transmits on pin 3.

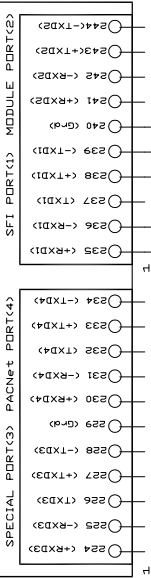


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ADB		5/18/15				
CHK.						
APPROVALS			TITLE SmartPAC to Minster B&R Feed Controller Wiring Diagram			
ENG.						
MFG.						
FILENAME			CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
REL				C	FIGURE 9	
			SCALE		SHEET	DF

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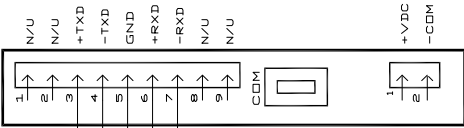
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		DESCRIPTION					

Wintriss SmartPAC and SmartPAC 2



The RS-485 4 wire connection is made to a 9 pin screw terminal connector on the front of the Digi One Serial to IP convertor.

DIGI ONE MODULE

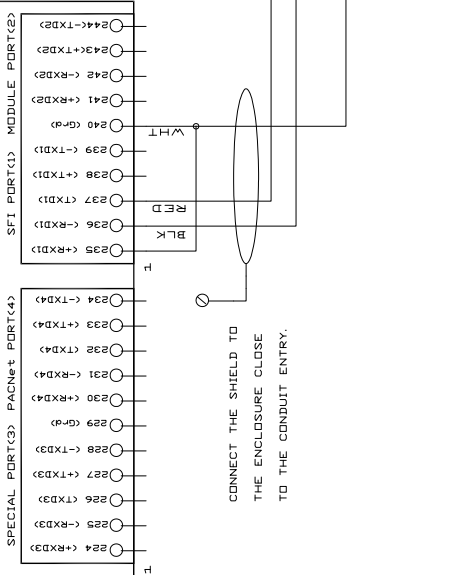


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CHK.			
APPROVALS			
ENG.			
MFG.			
FILENAME			
REL			

WINTRISS CONTROLS GROUP			
TITLE			
SmartPAC to Minster Kinetix Feed Controller Wiring Diagram			
CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
	C	FIGURE 10	
SCALE		SHEET	OF

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Wintriss SmartPAC and SmartPAC 2



Wintriss cable #4199112

This connector plugs into CHANNEL0 on the ASCII Interface module that is part of the Allen Bradley CompactLogix PLC control. The SmartPAC 2 communicates at 9600 baud.

The ASCII Interface module transmits data on pin 3 and it receives data on pin 2.

Pins 7 and 8 are jumpered together inside the DB-9 connector.

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ADB	5/18/15			
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APPROVALS		TITLE		
ENG.		SmartPAC to P/A K350/550		
MFG.		Feed Control Wiring Diagram		
FILENAME		CODE IDENT NO.	SIZE	DRAWING NUMBER
REL			C	FIGURE 11
SCALE		SHEET		DIF

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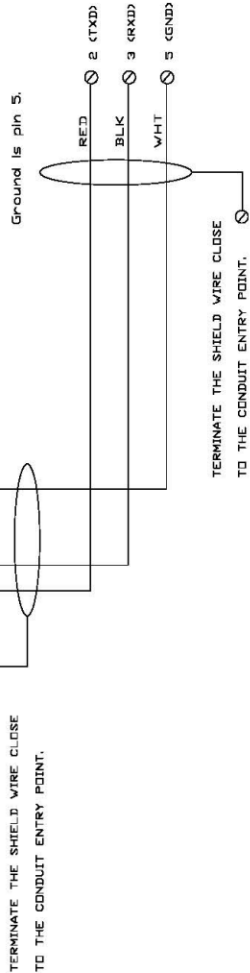
Wintriss SmartPAC and SmartPAC 2

To enable the SFI function in the Rapid-Air feeder wire #24 needs to be jumpered directly to pin #7 on the TRIO controller (item 11 on panel assembly drawing). Pin #7 is not brought out to the panel terminal strip like most of the TRIO I/O.

If this jumper is installed properly then the Feeder screen should show that the "SERVO FEED IS SFI CONTROLLED".

There is an RS-232 breakout DIN rail mounted board in the feed control cabinet. A 3 or more conductor shielded cable is used to hard wire the comms from the SmartPAC 2 to the terminals on the breakout board.

The feed controller transmits data on pin 2.
The feed controller receives data on pin 3.
Ground is pin 5.



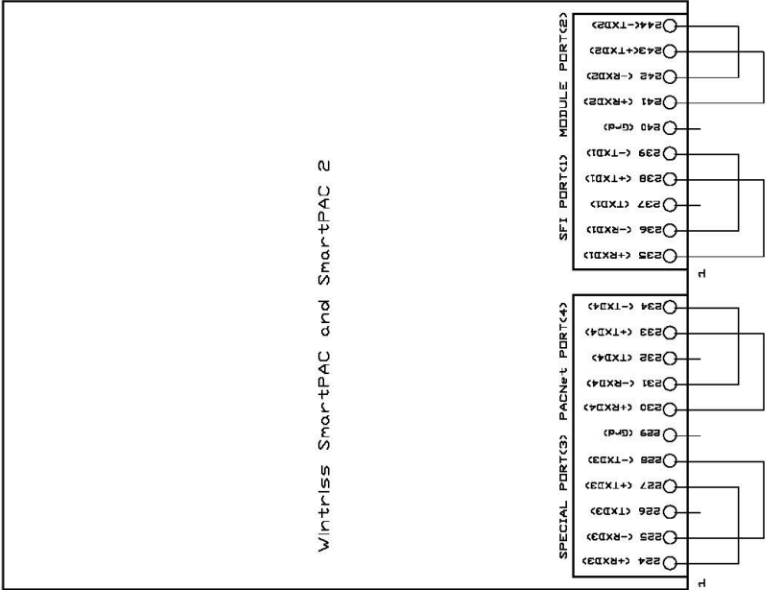
NOTE: Your wire colors may be different.

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ADD	10/15/15			
CHK:				
APPROVALS		TITLE		
ENG.		SmartPAC to Rapid Air Servo Control Ver C		
MFG.		C100D/T: Feed Controller Wiring Diagram		
FILENAME		CODE IDENT NO.	SIZE	DRAWING NUMBER
REL			C	FIGURE 12
SCALE		SHEET		OF

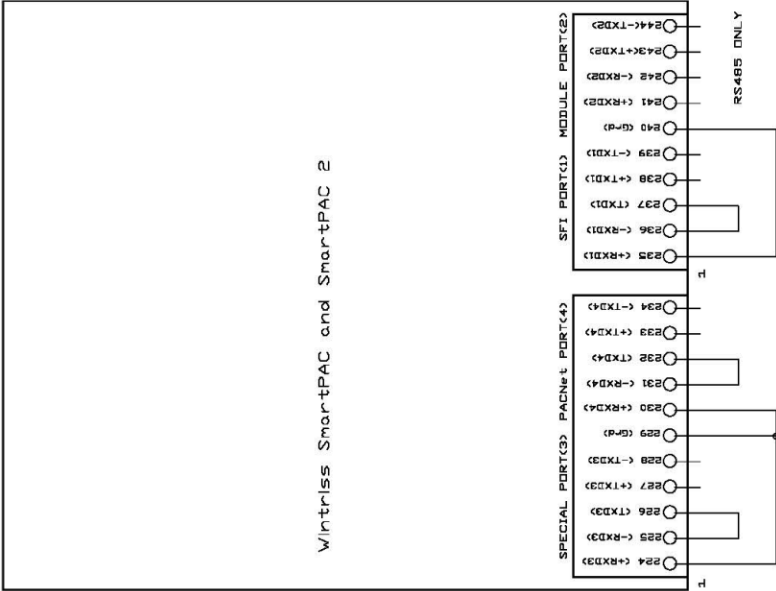
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RS 485 CONNECTIONS



RS 232 CONNECTIONS



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APPROVALS			TITLE			
ENG.			SMARTPAC LOOPBACK WIRING CONNECTIONS			
MFG.						
FILENAME			CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
REL			C		FIGURE 13	
			SCALE		SHEET DF	

