WEIGH-TRONIX

WPI-135 Indicator
Service Manual

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Specifications

Power Input	85-265 VAC, 50/60Hz, single phase
Excitation	10 Volts DC or 10 volts AC square wave capable of driving up to thirty-two 350-ohm weight sensors. Indicator is also capable of driving three Quartzell™ transducers
Operational Keys	Zero, Tare, Print, Units, Select, Enter, Escape, Clear, 0-9, Decimal Point and Five Soft Keys labeled per selected operational routine.
Operational Annunciators	Displayed symbols indicate motion, center of zero, unit of measure and more.
Display	Model 135—1" H x 4.3" W vacuum fluorescent dot graphic display (32 X 128 dot layout)
Display rate	Selectable, from once every ten seconds to 10 times per second
A to D Conversion Rate	60 times per second
Unit of Measure	Pounds, kilograms, grams, ounces, pounds and ounces and four programmable custom units
Capacity Selections	Up to 10,000,000 selectable
Incremental Selections	Multiples and sub multiples of 1, 2, 5
Decimal locations	88888888 pick any location relative to division size
Displayed Resolution	Up to 1 part in 10,000,000
Audio Output	Audio tone for key contact assurance or operational alarms
Time and Date	Battery protected real time clock is standard
Internal Resolution	1,000,000 counts analog, Quartzell™ transducer higher
Harmonizer™ digital filtering:	Fully programmable to ignore noise and vibration
Standard input and outputs: (internally)	Com 1: RS232, RS-485/422, Quartzell™ Com 2: RS232, 20 mA current loop Com 3: RS232, RS-485/422, Quartzell™, 16550 UART Com 4: RS232, RS-485/422, Quartzell™, 16550 UART (*One bidirectional signal per port*) Four set point I/O ports via OPTO 22 I/O modules 1 Analog scale input
Dimensions	7.25" H x 11" W x 8.25" D (184 mm x 279 mm x 205 mm)
Available Options	- Multiple analog scale inputs, up to seven additional - Eight fully isolated, programmable analog outputs, selectable 4-20mA, 0-5VDC, 0-10VDC, 0-20mA, 0-24mA, ±5VDC, ±10VDC - Remote expanded control interface for TTL or up to 64 solid state I/O modules - OPTO 22 Generation 4 I/O Modules - PC/104 Compatible expansion bus - Expanded memory - PC (AT) style alphanumeric keyboard - Alphanumeric, serial PC-style keyboard RS232/TTL - Field programmable with SimPoser® - Fieldbus Network Interfaces Device Net™, ProfiBus®, ControlNet™, InterBus-S, ModBus+, Ethernet (TCP/IP-ModBus)
Operating Temperatures	14 to 104° F (-10 to 40° C), 10 to 90% relative humidity
Enclosure	Stainless steel wash down enclosure NEMA 4X
Weight	17 lb, 7.7 kg
Agencies	NTEP Class III/IIIL:10,000d (pending) Canada Consumer Affairs (pending) UL/CUL (pending) OIML (pending) CE (pending) FCC Class A
Warranty	2 year

Introduction

About This Manual

This manual covers the information you need to configure and service your WPI-135 Weight Processing Indicator.

Major sections of this manual are headed by titles in a black bar like *Introduction* above. Subheadings appear in the left column. Instructions and text appear on the right side of the page. Occasionally notes, tips, and special instructions appear in the left column.

Front Panel Keys and Functions

Plug the WPI-135 into an easily accessible grounded outlet only. Never use the unit without an appropriate earthground connection.

Any computer based system should have a separate, grounded power circuit. We recommend one for the WPI-135.

The front panel is shown in Figure 1.

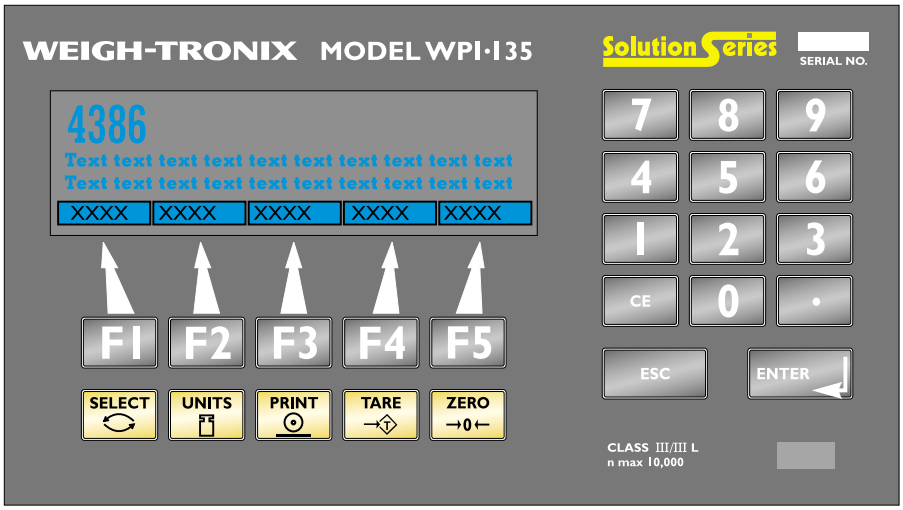


Figure 1
WPI-135 Front Panel

The keys on the front panel of the WPI-135 are of two types, hard keys and soft keys. Hard keys are labeled directly and soft key labels appear on the display. Soft keys function differently at different times so their labels change as needed. (F1-F5)

Hard Keys

Below are brief descriptions for each of the hard key functions:

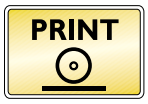
Repeatedly press the **SELECT** key to scroll through the available weight reading displays. (Examples - gross, net, tare, minimum, maximum, etc.)

Press the **UNITS** key to scroll through the available units of measure

By default the print format #0 sends:

Gross
Tare
Net

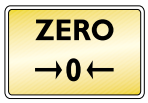
They are transmitted from port one only.



Press the **PRINT** key to send data to a connected printer. By default this key performs a DOPRINT command followed by a DOACCUM command.

Press the **TARE** key to enter a tare weight, then repeatedly press **SELECT** to scroll through the tare, gross and net weight displays.

MOTION
During motion an **M** *will appear below the center-of-zero icon.*



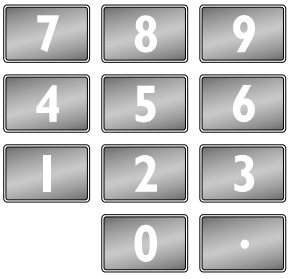
Press the **ZERO** key to establish a zero reference. A center-of-zero icon will be displayed when the weight is within ¼ division of zero.

Press the **ESCAPE** key to back out of menus or cancel a numeric entry without accepting the value.

ON/OFF
If the indicator is powered down via the **CE** *key or by a sleep mode, press any key to power the indicator back up.*

Press the **CLEAR** to clear values from the display prompts. Press and hold the **CE** key for five seconds to power down the indicator.

Press the **ENTER** key to enter a keyed in value or accept a displayed choice.



The numeric keypad is for entering numbers.

Soft Keys

Soft keys are so-called because their function is not fixed. Function can change as the mode of operation changes or as the program for your particular setup changes.

Their are five soft keys (labeled F1-F5) located directly below the display. If the keys are needed during any operation, a label for each active key appears in the display directly above. There are only five key labels available at one time but this does not limit the potential usefulness of these keys. Programs can be created to enable one key to access another menu of operation with more key names and functions.

Menu Structure

There are several menus you use to setup or service the WPI-135. You access the menus described below through the front panel. Each menu is briefly described here. For in depth information about a menu, go to that menu's section in this manual.

User menu (default password is 111)

The first menu covered in this manual is the **User** menu. The items in this menu are the most commonly changed values and parameters that you will use in the course of operating the WPI-135.

Configuration menu (default password is 2045)

The second menu covered is the **Configuration** menu. These items deal with some of the basic functions of the WPI-135 and do not need to be accessed very often.

Calibration menu (default password is 30456)

The third menu is the **Calibration** menu. This section will need to be accessed only when the scale is being calibrated or if you change scale capacity or division size.

Diagnostic menu (default password is 911)

This menu is used to access several tests which can help isolate problems.

Instructions for Accessing the Menus

You must key in the password within 5 seconds of accessing the password screen or the WPI-135 returns to normal operation.

A different password is needed to access each menu. Once you access the menu you want, the display presents a series of soft key choices. By pressing the appropriate soft key and following text prompts on the display, you can set up your WPI-135 to suit your needs.

Following are the instructions you need to access the menus of the WPI-135.

1. Press and hold the **ESCAPE** key until the WPI-135 beeps. . . The display asks for a password and looks like Figure 2.

Figure 2
Password display

2. Key in the password for the menu you want to access and press **ENTER**. . . The soft keys for the menu appear.

After you are finished in a menu you can press the EXIT soft key to return to normal operation. You may be asked if you want to save changes you have made. Follow the instructions on the display.

Below are the details for each menu.

User Menu

IMPORTANT NOTE
The WPI-135 can be sealed for legal for trade use and the software protected from change by a hardware connection. If the system is sealed, programs cannot be downloaded or altered. If the system is not sealed, programs can be downloaded from the SimPoser software. Sealing the WPI-135 does not affect the USER menu. This menu can be accessed and changed no matter what the system seal state is.

To seal or unseal the WPI-135, remove the nylon plug on the rear of the enclosure and press the button underneath.

Access the User menu using the instructions found in *Instructions for Accessing the Menus*. Use the default password 111. You will see the screen shown in Figure 3.

Figure 3
User menu soft key group

Figure 4 is a flowchart showing what soft keys or choices appear as you press the soft keys shown in Figure 3.

The User menu is not affected if the indicator is sealed or unsealed.

The values under SELECT in the flowchart to the right are not saved after a power down and power up.

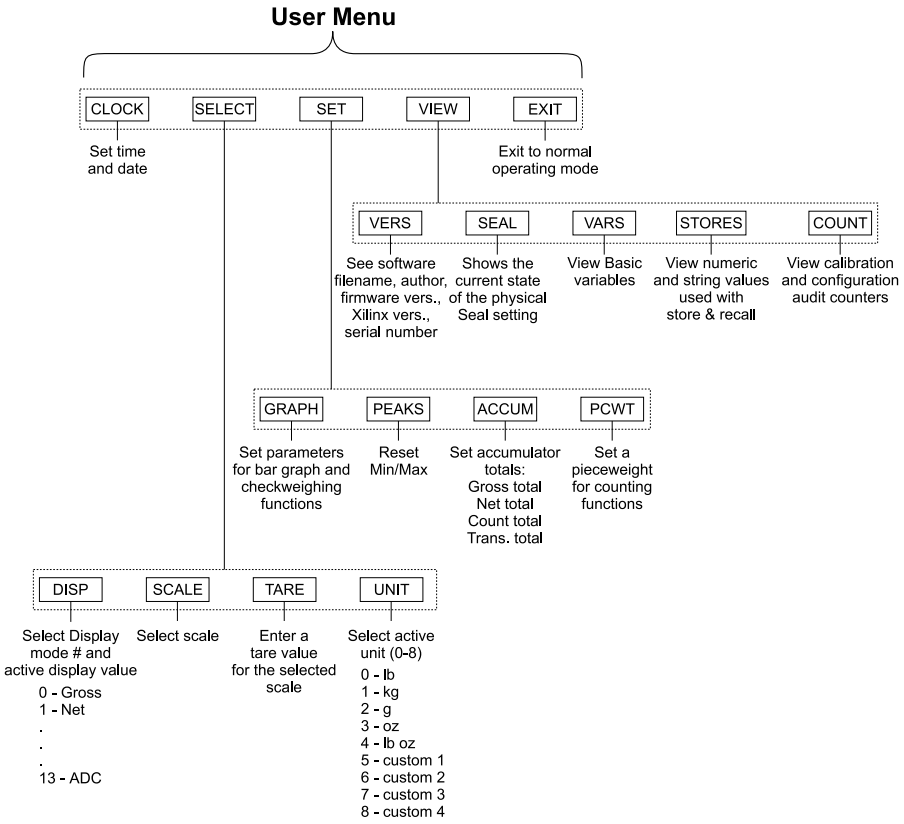


Figure 4
Soft key flowchart for User menu

User — CLOCK

Hours must be entered in military format:
23 = 11pm
13 = 1pm
1 = 1am

Press the **CLOCK** soft key to access the time and date setting function.

1. The display shows the current hour value. If this is not correct key in a new value and press **ENTER** or press **ENTER** to accept the current value. . . — The display shows the minutes value.

2. Repeat step 1 for minutes, seconds, year, month and day. (The day of the week is calculated automatically from the four digit year.) — Display returns to display shown in Figure 3.

User — SELECT

While in the this menu the display will show USER-SELECT in the top left to remind you of where you are in the USER menu.

Press the **SELECT** soft key to access the User—SELECT soft key group:

DISP Press this key to set the current display mode and active value

SCALE Press this key to select the scale number you want to use.

TARE Press this key to enter a known tare weight.

UNIT Press this key to select the active units of measure.

Following is a detailed description of the four functions listed above.

User — SELECT —DISP

The display mode you pick may not be the one that appears on the display. A display mode called out in the WT BASIC program overrides the setting you make through the front panel.

Variable (#11) is a variable value called out in a WT-BASIC program. ADC (#13) stands for Analog to Digital Counts.

If you press the **DISP** soft key, follow these instructions:

1. The display shows the current display mode number. Press **ENTER** to accept this value or key in a new number from the list in Appendix 1, then press **ENTER** to accept it.

   The display asks for the ACTIVE VALUE. This is the active display value.

2. Choose one of the following active display values by keying in 0-13, then press **ENTER**. . .

   The display returns to the USER-SELECT screen.

0 = Gross	4 = Max	8 = Count Total	12=Piece Weight
1 = Net	5 = Rate of Change	9 = Trans. Total	13=ADC
2 = Tare	6 = Gross Total	10=Count	
3 = Min	7 = Net Total	11=Variable	

User —SELECT —SCALE

You cannot select a scale number unless it has been activated in the SimPoser program and downloaded to the WPI-135, or enabled in the Config menu.

If you press the **SCALE** soft key the display will ask you to select a scale number. The currently active scale number is displayed. You can simply type a new scale number and press the **ENTER** key. If you have multiple scales attached to the indicator, this function chooses which scale's weight is displayed and which one the **ZERO** and **TARE** keys will affect.

User —SELECT —TARE

If you press the **TARE** soft key the display will show the current tare value for the active scale. You may key in a new tare weight and press the **ENTER** key to override the previous tare weight.

User
—SELECT
—UNIT

If you press the **UNIT** soft key the display will ask you to key in a number (0-6) which represents the value you want to be active. Below are the seven units to choose from and the corresponding number you need to key in for this function:

0- lb	3- oz	6- custom 2
1- kg	4- lb oz	7 - custom 3
2- g	5- custom 1	8 - custom 4

Press the **EXIT** soft key to return to the USER menu soft key group.

User —SET

Press the **SET** soft key to access the User—SET soft key group shown below:

GRAPH Press this key to set the parameters for bar graph and check-weighing functions.

PEAKS Press this key to reset the Min/Max.

ACCUM Press this key to set the accumulator totals.

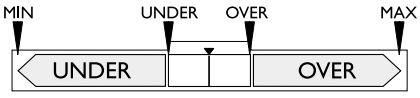
PCWT Press this key to set the pieceweight for counting functions.

EXIT Press this key to go back to the previous soft key set.

Following is a detailed description of the four functions listed above.

User
—SET
—GRAPH

Variable (#11) is a variable value called out in a WT-BASIC program. ADC (#13) stands for Analog to Digital Counts.



If you press the **GRAPH** soft key, follow these instructions:

1. The current MIN setting is displayed. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . . The UNDER value is displayed.

2. Repeat step 1 and accept or change the value, for UNDER, OVER, MAX and BASIS values. BASIS is same as the active values (0-13) shown below. These values now apply when using the bar graph or checkweighing display.

0 = Gross	4 = Max	8 = Count Total	12=Piece Weight
1 = Net	5 = Rate of Change	9 = Trans. Total	13=ADC
2 = Tare	6 = Gross Total	10=Count	
3 = Min	7 = Net Total	11=Variable	

User
—SET
—PEAKS

If you press the **PEAKS** soft key the display asks if you want to reset the MIN and MAX values now in memory. You are given the choice of YES or NO. After choosing the display returns to the USER-SET menu display.

User
—SET
—ACCUM

If you press the **ACCUM** soft key, follow these instructions:

1. The display shows you the current GROSS TOTAL in the accumulator. You can change this by keying in a new number and pressing **ENTER** or press **ENTER** to move to the next ACCUM value. . .

   The display shows the NET TOTAL value.

2. Repeat step 1 for NET TOTAL, COUNT TOTAL, and TRANS(action) TOTAL. . .

   The display returns to the USER-SET screen.

User
—SET
—PCWT

If you press the **PCWT** soft key the display shows the current value for the piece weight. Accept this by pressing the **ENTER** key or key in a new piece weight and press **ENTER**.

Press the **EXIT** key to return to the User menu soft key group.

User —VIEW

Press the **VIEW** soft key to access the User-VIEW soft key group:

VERS Press this key to see WPI-135 firmware part number, revision information (time, date and revision letter), serial number, Xilinx part number and revision, and information about a downloaded SimPoser program (license number, company name, version number, name of file and time and date downloaded.

SEAL Press this key to view/set the condition of the physical seal setting.

VARS Press this key to view the BASIC variables.

STORES Press this key to view the numeric and string values used with store and recall.

COUNT Press this key to view the calibration and configuration audit counters.

Following is a detailed description of the functions listed above.

User
—VIEW
—VERS

If you press the **VERS** soft key you will see the following information:

- Firmware version
- Part number and revision level
- Serial number of the indicator
- XILINX version
- XILINX part number
- XILINX revision level

- SimPoser license number and license holder of the person that saved the file
- SimPoser license number and license holder of the person that downloaded the file
- Version of the SimPoser that created the file
- File name
- Time and date file was created

Press any key again and the User-VIEW soft key set is displayed.

User
—VIEW
—SEAL

Press the **SEAL** soft key to see the current state the physical seal setting. The display will show ***Seal Status: Sealed*** or ***Unsealed***. Press the seal switch (S1) to toggle the physical seal state of the indicator.

User
—VIEW
—VARS

If you press the **VARS** soft key you will be able to scroll through the variables you have in your basic program. Press the **FIRST** soft key to see the first one and the **NEXT** soft key to scroll to the next one. Repeat this until you are through and press the **EXIT** soft key to return to the User—VIEW menu.

If no variables are defined the screen will show **NO VARIABLES DEFINED**.

User
—VIEW
—STORES

If you press the **Prev** *key when Store (0) is displayed, the display will show the max memory location. This is a good way to see how much memory is available for your WT-BASIC program.*

If you press the **STORES** soft key, follow these instructions:

1. The display asks if you want to DISPLAY NUMERICS?, and gives you the choice of **YES** or **NO**. If you press **YES** the display will look like this:

2. Press **PREV** (previous) to see the previous numeric record. Press **NEXT** to see the next numeric record. Press **SELECT** and the display will let you enter a specific numeric record number. When you press **ENTER** that record number will be displayed.

3. If you press **NO** in step 1 the following screen is displayed.

If you press the **Prev** *key when Store (0) is displayed, the display will show the max memory location. This is a good way to see how much memory is available for your WT-BASIC program.*

4. This screen lets you view all the strings stored in your BASIC program. View them the same way you did the numeric values.

5. Press **EXIT** to return to the User-VIEW menu.

Press **ESC** to return to the User menu. Press **EXIT** to return to normal operation. You have now seen all the parts of the User menu.

Configuration Menu

You must key in the password within 5 seconds of accessing the password screen or the WPI-135 returns to normal operation.

Access the Configuration menu using the instructions found in *Instructions for Accessing the Menus*. Use the default password 2045. You will see the screen shown in Figure 5.

Figure 5
Configuration menu display

Figure 6 is a flowchart showing what soft keys or choices appear as you press the soft keys shown in Figure 5.

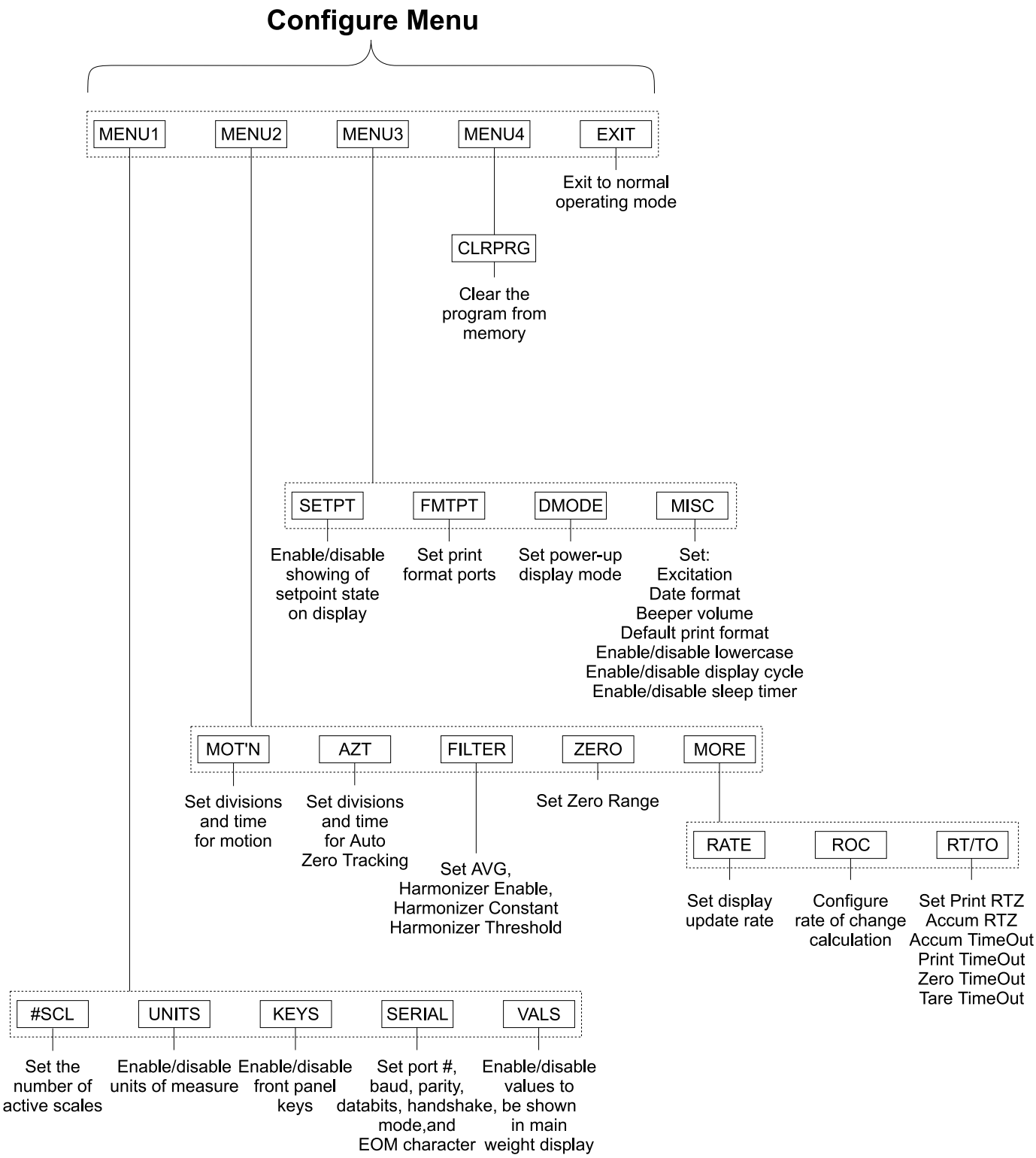


Figure 6
Soft key flowchart for Configure menu

Configuration —MENU 1

Press the **MENU1** soft key to access the following soft key group:

#SCL Press this key to set number of active scales,

UNITS Use this key to enable/disable units of measure.

KEYS Use this key to enable or disable front panel keys

SERIAL Use this key to set port #, baud rate, parity, databits, handshake, mode, and EOM character.

VALS Use this key to enable/disable values to be shown in the main weight display

Following are detailed instructions for setting these parameters.

Configuration —MENU1 —#SCL

If you press the **#SCL** soft key, follow these instructions:

1. The display will show the number of active scales. Accept this by pressing the **ENTER** key or key in the number of attached scales and press the **ENTER** key. . .

   The display returns to the MENU1 display.

Configuration —MENU1 —UNITS

If you press the **UNITS** soft key, follow these instructions:

1. The display asks if you want to enable the LB unit of measure and shows you the current state (***ON*** or ***OFF***). If the condition is as you want it, simply press the **ENTER** key. If you want to change the condition, press the **YES** or **NO** soft key, then the **ENTER** key to move to the next unit of measure. . .

   The kilogram unit of measure is the next one shown.

2. Repeat step 1 for kilograms, grams, ounces, pounds & ounces, and custom units 1 - 4. The display asks for calibration units, then the number of custom units that are equivalent. Key in the values and press **ENTER**. . .

   The display returns to the MENU1 display.

Custom Units prompts for how many calibration units equal how many custom units. Example: 2000 lb = 1 ton

Configuration —MENU1 —KEYS

If you press the **KEYS** soft key, follow these instructions:

1. The display asks if you want to enable the **SELECT** key and shows you the current state (***ON*** or ***OFF***). If the condition is as you want it, simply press the **ENTER** key. If you want to change the condition, press the **YES** or **NO** soft key, then the **ENTER** key to move to the next key. . .

   The **UNITS** key is the next one shown.

2. Repeat step 1 for UNITS, PRINT, TARE, ZERO, AUTOTARE and KEYPAD TARE . . .

   The display returns to the MENU1 display.

Configuration —MENU1 —SERIAL

If you press the **SERIAL** soft key, follow these instructions:

1. The display prompts you for serial port # to configure. Press **ENTER** if displayed port is OK or key in a new port number and press **ENTER**. . .

   The baud rate is displayed.

2. Press **ENTER** to accept the baud rate or key in a new baud rate from the table below and press **ENTER**. . .

   The parity code number is displayed.

   Baud Rates

300	9600
1200	19,200
2400	38,400
4800	56,700

3. Press **ENTER** to accept the parity or key in a new parity code number from the table below and press **ENTER**. . .

   The databits setting is displayed.

   Parity Codes

0 = NONE	3 = SET
1 = ODD	4 = CLEAR
2 = EVEN	

4. Press **ENTER** to accept the databits setting or key in the new databits value (7 or 8) and press **ENTER**. . .

   The handshake protocol code number is displayed.

CTS is a hardware handshake (ready/busy) which requires two extra wires in your cable.

Xon/Xoff is a software handshake requiring no additional hardware.

5. Press **ENTER** to accept the handshake protocol setting or key in a new code number for the handshake from the table below and press **ENTER**. . .

The mode code number is displayed.

Handshake Protocol Codes

0 = NONE	2 = Xon / Xoff
1 = CTS	3 = BOTH

6. Press **ENTER** to accept the mode setting or key in a new code number from the table below and press **ENTER**. . .

The EOM (end of message) value is displayed.

Serial Mode Control Codes

0 = BASIC control	2 = Disabled	4 = Computer
1 = Keyboard	3 = Multidrop	

BASIC Control - Control of the serial port is through the BASIC program executing in the WPI-135.

Keyboard - Control of the serial port is through an attached keyboard.

Disabled - The serial port is not in use for this configuration.

Multidrop - The serial port is configured in RS-485 Multidrop mode.

Computer- Makes certain indicator functions available via serial port.

EOM ASCII code #13 is carriage return.

7. Press **ENTER** to accept the EOM character or key in a new number from 0-256 and press **ENTER**. . .

The display returns to the CONFIGURE-MENU1 display unless you are configuring port 2 or 4. If you are configuring port 2 or 4, you must choose from the following:
Serial port 2: RS-232 or 20mA
Serial port 4: RS-232 or IR (Infrared)

Configuration —MENU1 —VALS

Press the **VALS** soft key to enable or disable the value which can be displayed on the main weight display when using the **SELECT** key. Below are the instructions for the **VALS** soft key:

1. The current setting (enabled ON or OFF) for the **GROSS** display value is displayed. Press **YES** to enable the active value or **NO** to disable this active display value, then press **ENTER** . .

The current setting for the **NET** active value is displayed.

2. Repeat step 1 for all the display values (NET, TARE, MIN., MAX., ROC, G-TOT, N-TOT, C-TOT, #-TOT, COUNT, VALUE, PCWT and ADC. . .

   The display returns to the MENU3 display.

This completes the instructions for all the parameters of Menu1.

Configuration —MENU 2

These configuration items pertain to a particular scale. If you have enabled multiple scales, you will be asked which scale you want to configure. Key in the scale number, press **ENTER** and continue. If you have enabled only one scale, continue with the following instructions.

Press the **MENU2** soft key to access the following soft key group:

MOTION Use this key to set the motion detection window size in divisions and the time window in seconds.

AZT Use this key to set the AZT window size in divisions and the time window in seconds.

FILTER Use this key to set up the Harmonizer filtering to counteract vibration of the scale.

ZERO Use this key to set the zero range. This is a percent of capacity that is allowed to be zeroed when pressing the **ZERO** key. (0-100% allowed)

MORE This accesses the following three soft keys.

RATE Press this key to configure the display update rate in updates per second.

ROC ROC stands for Rate of Change. Press this key to set up your WPI-135 Indicator to calculate Rate of Change for flow rate, or weight/time, applications.

RZ/TO Press this key to configure Print Return to Zero (RZ), Accumulator RZ, Accumulator Timeout, Print Timeout and Zero Timeout.

Following are detailed instructions for setting these parameters.

Configuration —MENU 2 —MOT'N

Use this key to set the motion detection window size in divisions and the time window in seconds.

For example: If you set divisions to 3 and seconds to 1, if the weight value does not change more than 3 divisions in one second, the scale or weight is considered stable.

If you press the **MOT'N** soft key, follow these instructions:

1. The current value for the motion window size, in divisions, is shown. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .

   The current time window in seconds is displayed.

2. Press **ENTER** to accept this time period or key in a new value and press **ENTER**. . .

   The display returns to the MENU2 display.

Configuration —MENU 2 —AZT

Use this key to set the AZT window division size and time window in seconds. The division size you pick defines a range above and below zero. When scale weight is inside this range for the number of seconds you picked, ½ of the weight will be zeroed. The indicator will repeat removing ½ the weight every X seconds. X being the number of seconds you have picked.

If you press the **AZT** soft key, follow these instructions:

1. The current value for the AZT window size, in divisions, is shown. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .

   The current time window in seconds for AZT is displayed.

2. Press **ENTER** to accept this time period or key in a new value and press **ENTER**. . .

   The display returns to the MENU2 display.

Configuration —MENU 2 —FILTER

Use this key to set up the Harmonizer filtering to counteract vibration of the scale. A full explanation is given below. See Appendix 2 for tips on using Harmonizer.

The A-D weight conversion happens 60 times per second in the WPI-135. AVG is the number of conversions you want to average. For example, if you pick 30, the unit will average the weight values from the last 30 conversions or ½ second and uses that value for displayed data.

The next choice you have is for turning the Harmonizer filtering on or off. If you turn the Harmonizer filtering on you need to set the Harmonizer Constant. Typical values are between 1-10. Set the number low for small vibration problems and higher for more dampening effect.

In the SimPoser software the Harmonizer constant choices are 1 through 10. This setting is to be made in the "real world" on a working system so there are more menus available from the front panel.

The purpose of the Harmonizer Threshold is so the indicator will respond quickly to large weight changes. Harmonizer Threshold is the amount of weight change, in calibration units, beyond which the Harmonizer will be temporarily disabled. For example, if you set this to 10 lbs, a weight change over 10 pounds occurring during the sample time (½ sec. in our example) will disable the Harmonizer until the weight change during the sample time drops below 10 lbs.

If you press the **FILTER** soft key, follow these instructions:

1. The display shows the current value for the number of samples to average. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .

   The display shows the state of the Harmonizer filtering(ON or OFF).

2. Press **YES** to enable Harmonizer or **NO** to disable the Harmonizer parameter, then press **ENTER** . . .

   The current Harmonizer Constant value is displayed.

3. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .

   The current Harmonizer Threshold value is displayed. This value is in calibration units.

4. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .

   The display returns to the MENU2 display.

Configure —MENU2 —ZERO

If you press the **ZERO** soft key you are prompted for a zero range. Accept the displayed value by pressing **ENTER** or key in a new one and press **ENTER**. The display returns to the MENU2 display.

Configure —MENU2 —MORE

This soft key accesses the last three soft keys in this menu. They are described below.

Configure —MENU2 —MORE —RATE

If you press the **RATE** soft key you are prompted for a display update rate. Accept the displayed value by pressing **ENTER** or key in a new one and press **ENTER**.

The following values are available: 0.1, 0.25, 0.5, 1, 2, 5 and 10. If you enter a value not in the list, the unit defaults to five.

The display returns to the MENU2—MORE display.

Configure —MENU2 —MORE —ROC

ROC stands for Rate of Change. Press this key to set up your WPI-135 Indicator to calculate Rate of Change for flow rate, or weight/time, applications.

ROC Samples
The number of samples over which the rate of change of weight is determined. The WPI-135 converts weight from A to D at 60 times per second. If ROC Samples is set to 60, the WPI-135 is determining the rate of weight change over one full second.

$$\frac{\text{Cal Unit}}{\text{Custom Unit weight in Calibration Units}} = \frac{1}{8} = 0.125$$

ROC Mult

The ROC Multiplier allows you to enter a conversion factor to translate weight to some other unit of measure, such as gallons or some other weight unit based upon the calibration unit of measure.

ROC Examples:

If pounds is your calibration unit, pick a sample value of 60 and a multiplier of 1. The display will show the rate of change in pounds/second.

For gallons of water/second set the sample value at 60 and the multiplier to 0.125. Water = 8 lbs/gallon (8 lbs is close enough for our example) so their are 0.125 gallons per pound. See formula to the left.

To get gallons/minute, do not change the sample size but rather multiply the 0.125 by 60 to get a value equal to gallons/pounds/minute (7.5). The display will then show you a rate of change in gallons per minute. (This is the flow over the last second not over a whole minute's time.)

If you press the **ROC** soft key, follow these instructions:

1. The display shows the current value for SAMPLES. Press **ENTER** to accept the current value or key in a new one and press **ENTER**. . .	The current multiplier value is displayed.
2. Press **ENTER** to accept the current value or key in a new one and press **ENTER**. . .	The display returns to the MENU2—MORE display.

Configure —MENU2 —MORE —RT / TO

Press this key to configure Print Return to Zero (RTZ), Accum RTZ, Accum TimeOut, Print TimeOut, Zero TimeOut and Tare TimeOut.

For the RTZ functions, set the percent of capacity the weight must fall below before another Print or Accum action can occur.

For the TimeOut functions, set the amount of time, in seconds, the indicator will retry the function before it gives up.

If you press the **RT / TO** soft key, follow these instructions:

1. The current value for PRINT RTZ is displayed. Press **ENTER** to accept this value or key in a new value and press **ENTER**. . .	The Accum RTZ value is displayed.
2. Repeat step 1 for Accum RTZ, Accum TimeOut, Print Timeout, Zero Timeout, and Tare Timeout. . .	The display returns to the MENU2—MORE display.

Press the **ESC** key twice to return to the CONFIGURE display.

Configure —MENU3

Press the **MENU3** soft key to access the following soft key group:

SETPT Press this key to enable or disable viewing of setpoint state in the right corner of the weight display.

FMTPT Press this key to configure a port to use for each print format.

DMODE Press this key to pick a power-up display mode from those available in *Appendix 1: Display Samples*.

MISC Press this key to do the following: Choose the excitation for the loadcell, set default print format, choose date format preference, set beeper volume, choose uppercase or lowercase for the small font, enable or disable the display cycle using the decimal (.) key on the front panel and set up the sleep timer.

Following are detailed instructions for setting these parameters.

When using the Showsetpt, make sure you use a display mode that will not interfere with the dots, such as display mode 16.

Configure —MENU3 —SETPT

If you press the **SETPT** soft key you are asked if you want to show setpoints. Press **YES** if you want to see the setpoint state in the upper right corner of the display. Press **NO** if you do not want to see this. The display returns to the MENU3 display.

Configure —MENU3 —FMTPT

If you press the **FMTPT** soft key you are shown a format number and a port number. Accept the port number for each format or key in a new port number for up to 32 formats. After the last entry or when you press **ESC**, the display returns to the MENU3 display.

Configure —MENU3 —DMODE

If you press the DMODE soft key you are asked what power up display mode you would like. Press **ENTER** to accept the displayed display number or key in a new number and press **ENTER**. Choose the display from those shown in *Appendix 1: Display Samples*.

Configure —MENU3 —MISC

If you press the **MISC** soft key, follow these steps:

1. The current excitation is displayed next to ***SELECT EXCITATION:***. If this is OK, press **ENTER**. If there is no excitation displayed, or if you want to change the excitation, press the appropriate softkey from this list of choices: DC, 300HZ, 600HZ, or 1.2KHZ. Press **ENTER** to accept the choice. . . The date format screen is displayed.

2. Choose the date format you want (MMDDYY, DDMMYY, or YYMMDD) and press **ENTER**. . . The beeper volume screen is displayed.

3. Press **ENTER** to keep the displayed volume or press the soft key for: OFF, LOW, MED or HIGH. Press **ENTER** after making your choice. . .

   The default print format screen is displayed.

4. Press **ENTER** to keep the displayed default print format or type in a new format number and press **ENTER** to accept it. . .

   The current setting for the small font is shown.

5. Press **ENTER** to keep the current choice. Press **NO** to disable lowercase font on the display. Press **YES** to enable lower case letters on the display. Press **ENTER** to accept your choice. . .

   The current setting for the display cycle is shown.

6. Press **ENTER** to keep the current choice. Press **NO** to disable the decimal (.) key from cycling through the display modes. Press **YES** to enable this function. Press **ENTER** to accept your choice. . .

   The current setting for the sleep timer is shown.

7. Press **ENTER** to keep the current setting or press the **NO** soft key to disable it or the **YES** soft key to enable it. Press **ENTER** to accept your choice. If you pick **YES**, you are prompted to enter a time in hours, then prompted to enable or disable a warning beeper. If no indicator activity occurs in this period of time, the indicator will turn itself off preceded by a series of warning beeps. Press **ENTER** to accept your choices. . .

   The display returns to the MENU3 display.

Configure —MENU4

The only soft key in MENU4 is the CLRPRG key. Press this key only if you want to clear the BASIC program from the indicator memory.

WARNING: Do this only if you are sure it is absolutely necessary!

Press the **ESC** key then the **EXIT** soft key to exit the Configure menu. You will be prompted to save any changes you have made. Press **YES** to save the changes. Press **NO** to exit without saving the changes. The indicator restarts.

Calibration Menu

Access the Calibration menu using the instructions found in *Instructions for Accessing the Menus*. Use the default password 30456. You will see the screen shown in Figure 7.

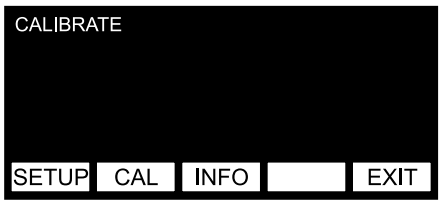


Figure 7
Calibration menu display

Figure 8 is a flowchart showing what soft keys or choices appear as you press the soft keys shown in Figure 7.

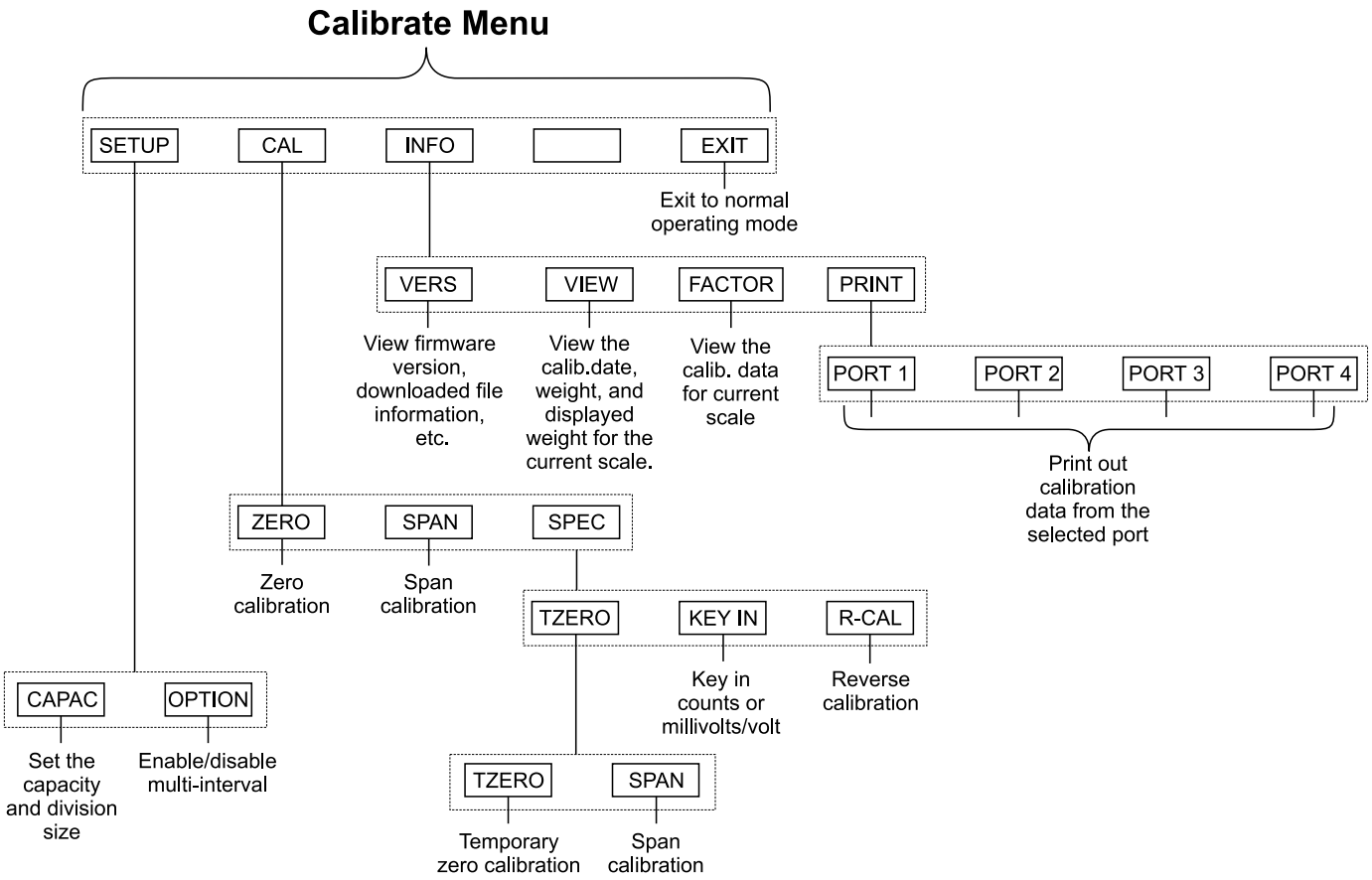


Figure 8
Soft key flowchart for Calibration menu

Calibrate —SETUP

Press the **SETUP** soft key to access the following soft key group:

CAPAC Press this key to enter the capacity of the scale and the division size.

OPTION Press this key to enable or disable multi-interval use.

Following are detailed instructions for setting these parameters.

Calibrate —SETUP —CAPAC

If you press the **CAPAC** soft key, follow these instructions:

1. The display shows the current value for the capacity. Press **ENTER** to accept this value or key in a new capacity and press **ENTER**. . . — The current division size is displayed.

2. Press **ENTER** to accept the division size or key in a new one and press **ENTER**. . . — The display returns to the SETUP display.

Calibrate
—SETUP
—OPTION

Press the **OPTION** soft key to enable or disable the multi-interval option. If you enable the multi-interval option, the division size you choose under **CAPAC** applies to weight on the scale from 0 to ½ capacity. For weight on the scale from ½ capacity to full capacity the division size will double.

When multi-interval is enabled, the division used to check for stability, center of zero, and AZT is always the smaller division size. Overload and underload is always calculated based on the upper division size.

The displaying and printing division size depends on which interval the scale is in. The active interval is chosen based on net when a tare weight is active, and gross weight when a tare is not active.

When gross is displayed or printed (regardless of the tare value) the division size used depends on the interval used.

After pressing **ENTER** to accept your choice of enabling or disabling the multi-interval option, the display returns to the SETUP soft key choices.

Calibrate —CAL

Press the **CAL** soft key to access the softkey set used to set zero and span, shown below:

ZERO Use this key to set the zero reference.

SPAN Use this key to span the scale.

SPEC Use this key to access another set of soft keys for specialized calibration.

Following are detailed instructions for setting these parameters.

Calibrate
—CAL
—ZERO

If you press the **ZERO** soft key the display asks you to remove all weight from the scale then press **ENTER**. After the indicator has calibrated the zero point, the display says ***DONE*** and asks you to press any key. Above the text you will see the weight displayed. It should read zero in the increments you've chosen. If not you should perform this step again. The display returns to the CAL display.

Calibrate
—CAL
—SPAN

If you press the **SPAN** soft key, follow these instructions:

1. The current span calibration weight is displayed. Press **ENTER** to accept this weight or key in a new one and press **ENTER**. . .
   The display prompts you to apply the test weight load to the scale.
2. Apply the test weight load to the scale and press **ENTER**. . .
   The indicator determines the span and tells you when it is done. Above the text, the display should show you the correct test weight. If not perform the span again.
3. Press any key to return to the CAL display.

Calibrate
—CAL
—SPEC

Use the **SPEC** soft key to access three new softkeys. These soft keys are listed below.

TZERO This stands for temporary zero. This calibration procedure is useful when a scale has weight on it that is impractical to remove, such as a hopper or bin which is partially full of material. This calibration allows you to establish a temporary zero, add weights to the scale and do a span without losing the zero reference point.

KEY IN This calibration procedure allows you to key in calibration data, mV/V or counts. This means calibration data can be transferred between different indicators if one fails and no new calibration procedure need be done.

R-CAL This stands for reverse calibration. Use this procedure when it is impractical to hang weights from a full or partially full hopper or bin. You can key in a span weight, unload that weight onto another scale, perform a zero calibration and your scale is calibrated.

Following are detailed instructions for these soft keys.

Calibrate
—CAL
—SPEC
—TZERO

If you press the **TZERO** soft key, you are shown two new soft keys, **TZERO** and **SPAN**.

To perform the temporary zero spanning procedure, press the **TZERO** soft key. The indicator performs a zero function, the display says ***DONE*** and asks you to press any key. Above the text you will see the weight displayed. It should read zero in the increments you've chosen. If not you should perform this step again. The display returns to the TZERO display.

Next, press the **SPAN** soft key.

1. The current span calibration weight is displayed. Press **ENTER** to accept this weight or key in a new one and press **ENTER**. . .

   The display prompts you to apply the test weight load to the scale.

2. Add the test weight load to the scale and press **ENTER**. . .

   The indicator determines the span and tells you when it is done. Above the text, the display should show you the correct test weight. If not perform the span again.

3. Press any key to return to the TZERO display.

Press **ESC** to return to the SPEC display.

Calibrate
—CAL
—SPEC
—KEY IN

Press the **KEY IN** soft key if you want to set up a new indicator to replace another indicator and keep the original indicator's calibration settings. To do this you must have recorded the zero counts or mV/V values of the original indicator in order to transfer that information to the new indicator. This information can be found in the Calibrate menu under the **INFO** and **FACTOR** soft keys.

If you press **KEY IN**, you are asked if you want to set up the calibration using zero counts or mV/V. Choose one.

Calibrate
—CAL
—SPEC
—KEY IN
—CNTS

If you press **CNTS**, follow these steps:

1. The display shows the current zero counts value. Key in the value from the original indicator and press **ENTER**. . .	The display shows the current span weight.
2. Key in the span weight from the original indicator and press **ENTER**. . .	The display shows the span counts.
3. Key in the span factor from the original indicator and press **ENTER**. . .	Display returns to the SPEC soft keys.

Calibrate
—CAL
—SPEC
—KEY IN
—MV/V

If you press **MV/V**, follow these steps:

1. The display prompts for the cal zero mV/V value. Key in the value from the original indicator and press **ENTER**. . .	The display shows the current cal weight.
2. Accept the displayed cal weight, if it is the same as the cal weight of the original indicator, by pressing **ENTER** or key in the correct value from the original indicator and press **ENTER**. . .	The display shows the span mV/V.
3. Accept the displayed span mV/V, if it is the same as the span mV/V of the original indicator, by pressing **ENTER** or key in the correct value from the original indicator and press **ENTER**. . .	Display shows the SPEC soft keys.

Calibrate
—CAL
—SPEC
—R-CAL

If you press the **R-CAL** soft key, you can perform a reverse calibration. In other words, you start with a loaded scale, remove **all** the weight from the scale for spanning, then get your zero reading. This may require a container on a separate scale into which you discharge the material.

1. Press the **R-CAL** soft key. . .	Display shows the title *Reverse Calibration Span* and prompts you to press **ENTER**.
2. Press **ENTER**. . .	The indicator determines span point #1 and shows ***DONE*** when finished. The display prompts you to press any key to continue.
3. Press any key. . .	Display prompts you to enter a calibration weight. This is the weight that is currently on the scale. You will remove all this weight from the scale in step 5. This value is used for spanning the scale. Reference zero is also acquired at this time.
4. Key in a calibration weight value equal to the amount to be removed from the scale in step #5 and press the **ENTER** key. . .	The indicator prompts you: "REVERSE CALIBRATION ZERO: Remove load, Press ENTER."
5. Empty the scale and press **ENTER**. . .	The indicator acquires span point #2 and shows ***DONE*** when finished.
6. Press any key to return to the SPEC display.	

You need to remove all the weight from the scale in this step.

Calibrate —INFO

Press the **INFO** soft key to access the following soft key group:

VERS Press this key to view firmware and downloaded file information.

VIEW Press this key to view calibration information.

FACTOR Press this key to view the calibration data (mV/V and counts) for the current scale.

PRINT Press this key to print out calibration data from the selected serial port.

Following are detailed instructions for setting these parameters.

Calibrate
—INFO
—VERS

If you press the **VERS** soft key, you can see all the following information on consecutive screens as you press any key to continue. The SimPoser information will be available only if a file has been downloaded to the indicator.

- Firmware version
- Part number and revision level
- Serial number of the indicator
- XILINX version
- XILINX part number
- XILINX revision level
- SimPoser license number and license holder of the person that saved the file
- SimPoser license number and license holder of the person that downloaded the file
- Version of the SimPoser that created the file
- File name
- Time and date file was created

After viewing the last screen, the display returns to the INFO display.

Calibrate
—INFO
—VIEW

If you press the **VIEW** soft key, you can view the following information about calibration:

- Calibration date
- Calibration weight
- Displayed weight following calibration

Calibrate
—INFO
—FACTOR

If you press the **FACTOR** soft key, you can see the following:

- CAL ZERO in mV/V
- CAL FACTOR in mV/V
- CAL ZERO in counts
- CAL FACTOR in counts per divison
- CFG
- GAIN
- DAC
- AINRO
- AINNO
- URFNO

A/D converter settings

Calibrate
—INFO
—PRINT

If you press the **PRINT** soft key you are given a choice of four ports through which to print the calibration information. Pick port 1-4 and the information is transmitted and the screen returns to the INFO display.

Calibrate
—EXIT

Press the **EXIT** softkey to return to normal weighing operation. You will be prompted to save any changes made. Press **NO** to exit without saving changes. Press **YES** to exit and save changes.

Test Menu

There is one more menu that you can access for testing purposes. The flowchart of soft keys in the menu are shown in Figure 9.

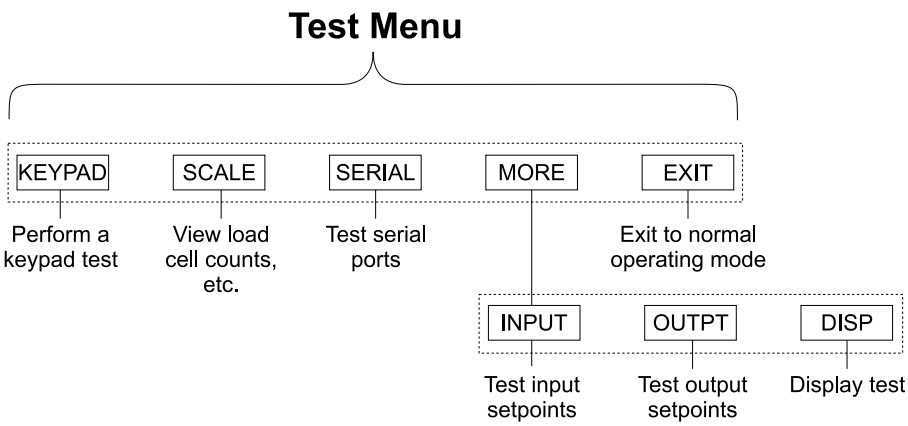


Figure 9
Flowchart of soft keys in the Test menu

Hold the **ESCAPE** key for 5 seconds then key in **911** at the prompt. These softkeys appear:

KEYPAD This test lets you check each front panel key for proper operation. Follow the instructions on the display.

SCALE This key allows you to view the loadcell output from a selected scale.

For Quartzell scales you will see a screen similar to this:

This screen shows you:

- the serial number of the Quartzell in the currently selected base
- the raw counts from the cell (which should be stable ±200 counts and increase when weight is applied)
- the tension frequency (Ft) and compression frequency (Fc) (Both should be approximately 50,000 counts and stable ±200 counts and within 2000 counts of each other. As weight increases the tension count should increase and the compression count should decrease.
- Cell size (30Kg for example)/Display resolution for maximum efficiency (10000 is shown)

- Software version of the cell (vD.A in this example)

For analog scales you are shown:

- a raw count value and its equivalent mV/V value. (These values should be positive and increase as weight is applied.

SERIAL Use this to test your ports. Select Port #1 through 4 then short the TX and RX on the selected port. The display will change from NO LOOP to LOOP indicating the port is good. Jumper RTS to CTS to test the handshake lines.

MORE Accesses the following keys:

Inputs and outputs have to be defined in the WT-BASIC program for them to work.

INPUT Allows you to Activate/Deactivate any input setpoint device such as a switch or contact closure remotely and monitor it with this menu.

OUTPT Allows you to Activate/Deactivate any output setpoints to verify correct hardware operation during installation or for trouble-shooting purposes.

DISP This test continuously cycles the display through various patterns.

NET This diagnostic will only appear if a network option card is installed. Follow the instructions on the display.

Disassembly and Reassembly

Following are the steps for disassembly and reassembly of the WPI-135 for service purposes.

1. Disconnect the WPI-135 from power and all peripheral equipment.
2. Remove the 14 acorn nuts holding the rear panel to the case. See Figure 10.

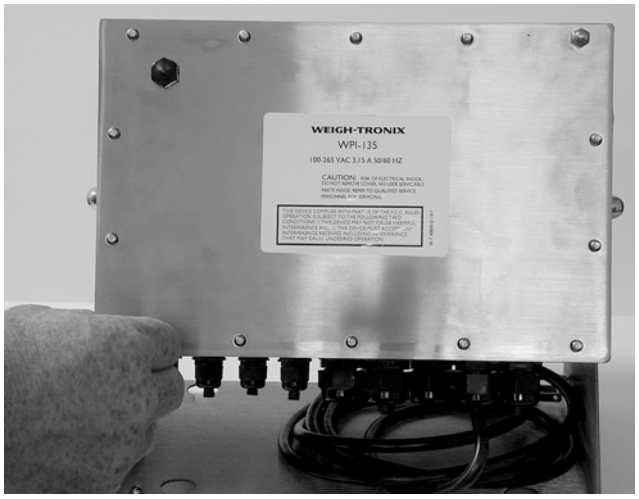


Figure 10
Removing the acorn nuts

3. Carefully pull the back from the case and lay it down. See Figure 11.

Figure 11
Back removed

3. If you need to remove the power supply board from the inside of the back cover, begin by disconnecting the power supply wires and the wires leading to the main board. Remove the eight screws holding the pc board as shown in Figure 12.

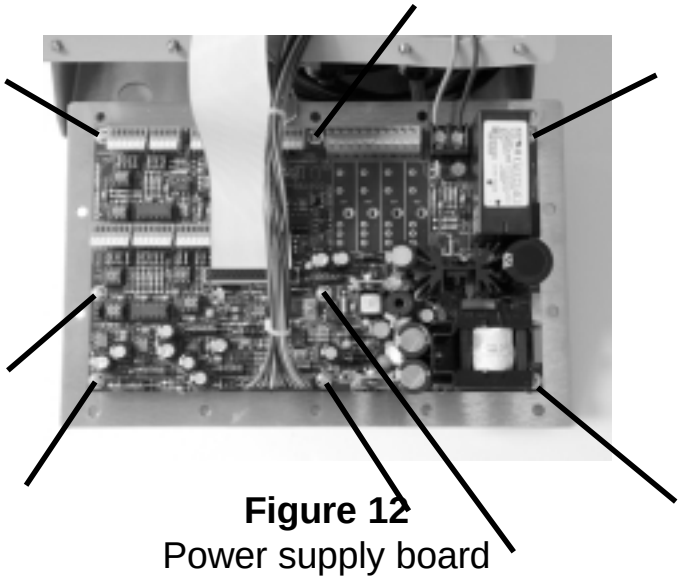


Figure 12
Power supply board

4. If you need to remove the main board, disconnect the cables from the main board. Remove the six hold down screws on the board, as shown in Figure 13 and pull out the main board. The sixth screw is located under the ribbon cable in the photograph. Take care because there is a hidden connector between the main board and the display board beneath it. Disconnect this by pulling the main board straight back from the display board.

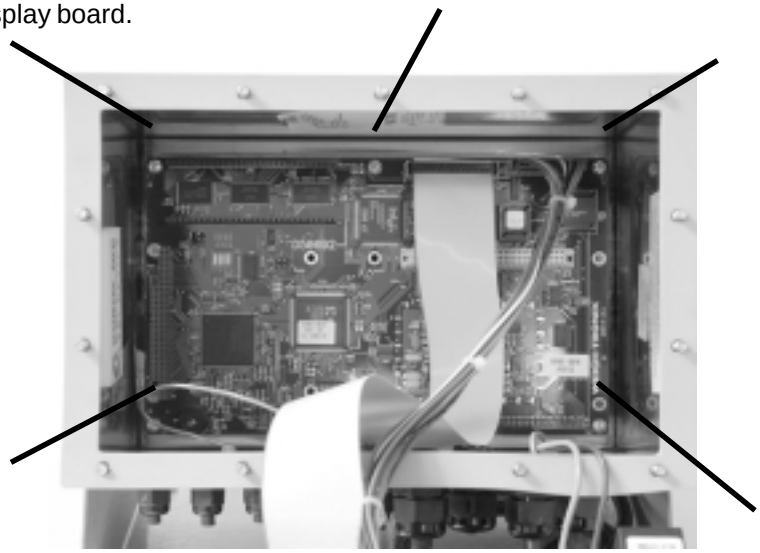


Figure 13
Main board

5. There is a display pc board and a display module attached to the backer plate. If you need to remove the display board, disconnect the cables and remove the three standoffs and two nuts shown in Figure 14

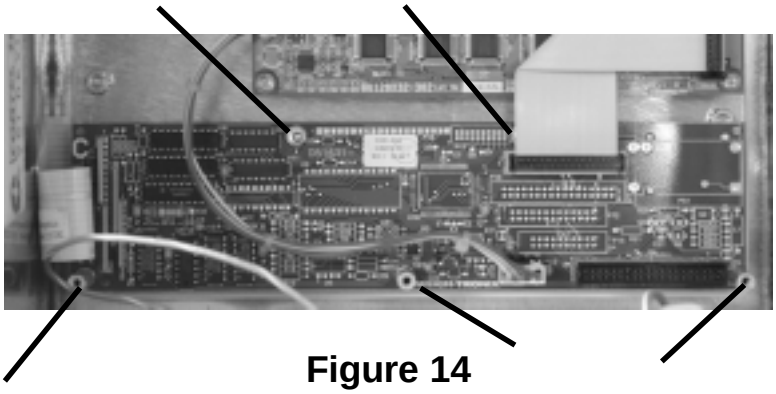


Figure 14
Display board

6. To remove the display module, disconnect the cables and remove the four screws holding the module to the backer plate and pull it from the case. See Figure 15.

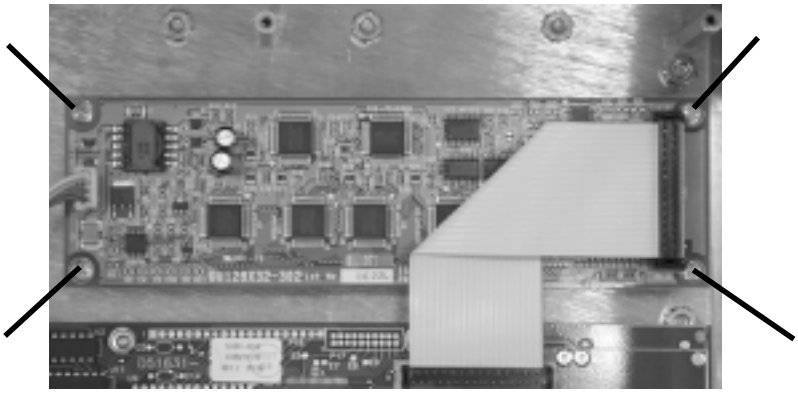
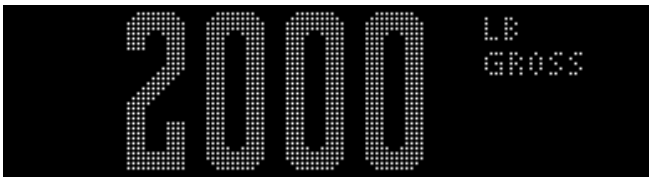


Figure 15
Display module

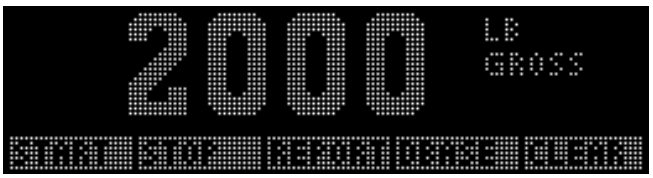
Replace any of the boards if needed and reassemble the unit by reversing the disassembly procedure.

Appendix 1: Display Samples



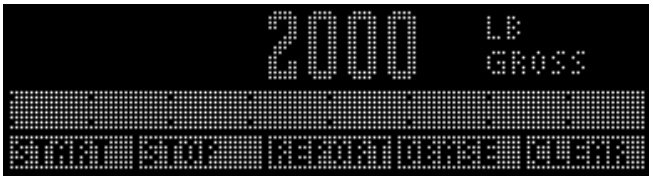
#1

#9

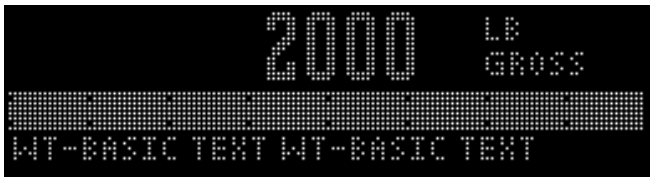


#2

#10

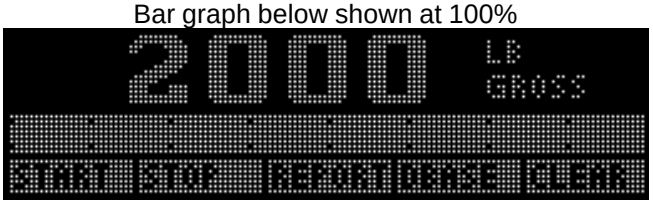


#3



#11

Bar graph below shown at 100%



#4

Bar graph below shown at 50%

#12

Checkweigher shown in overload condition below.

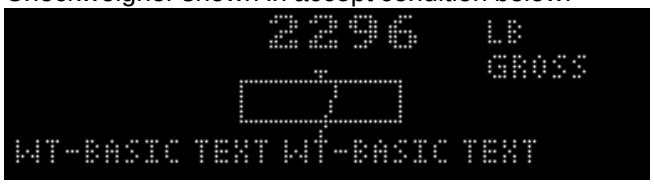
#5

Checkweigher shown in underload condition below.

#13

#6

Checkweigher shown in accept condition below.



#14

#7

#15

#8

#16

#17

#26

#18

#27

#19

#28

#20

#29

#21

#30

#22

#31

#23

#32

#24

#33

#25

The following are multi-scale displays. If all the lines are not used for scales, they are available for Basic text. #34, 35, 40 and 41 are small basic text. #36, 37, 42 and 43 are large basic text.

#34

#39

#35

#40

#36

#41

#37

#42

#38

#43

Appendix 2: Tips on Using Harmonizer

To find the best settings for your filter needs, follow the steps listed below.

1. **What to Do:** Determine the amount of positive and negative force exerted by the vibration on the scale.

   How to Do It: Set Threshld to 0.0, Constant to OFF, and Samples to Average to 1.0 A-Ds. Return to weigh mode and observe the weight swings. Record the difference between the highest and lowest displayed weight values. Add 30 to 50% to this value. This is a good starting value for the Threshld setting. Do not set your indicator to this value until told to in step 7.

2. Setting the Average to higher values increases the filtering effect.

   What to Do: Set Threshld to 0.0, Constant to OFF and Samples to Average to 12 A-Ds. Check the stability of the scale.

   How to Do It: Save changes and exit to normal weight mode. Observe the Center of Zero light. If it is on all the time your scale is stable within ¼ division. If the Center of Zero light blinks more filtering is required. Go to step 3.

3. Repeat step 2 but increase the Samples to Average by 12 A-Ds. Keep repeating steps 2 and 3 until the scale is stable or you've tried the entire range of Samples to Average (60 A-Ds). If the scale is still not stable go to step 4.

4. Setting the Constant to higher values increases the filtering effect.

   What to Do: Set Threshld to 0.0, Constant to 1.0 and Samples to Average to 60 A-Ds. Check the stability of the scale.

   How to Do It: Save changes and exit to normal weight mode. Observe the Center of Zero light. If it is on all the time your scale is stable within ¼ division. If the Center of Zero light blinks more filtering is required. Go to step 5.

5. Repeat step 4 but increase the Constant by 1.0. Keep repeating steps 4 and 5 until the scale is stable or you've tried the entire range of Constant (10). If the scale is still not stable, decrease your display update rate and start over at step 1 using the new, slower display rate.

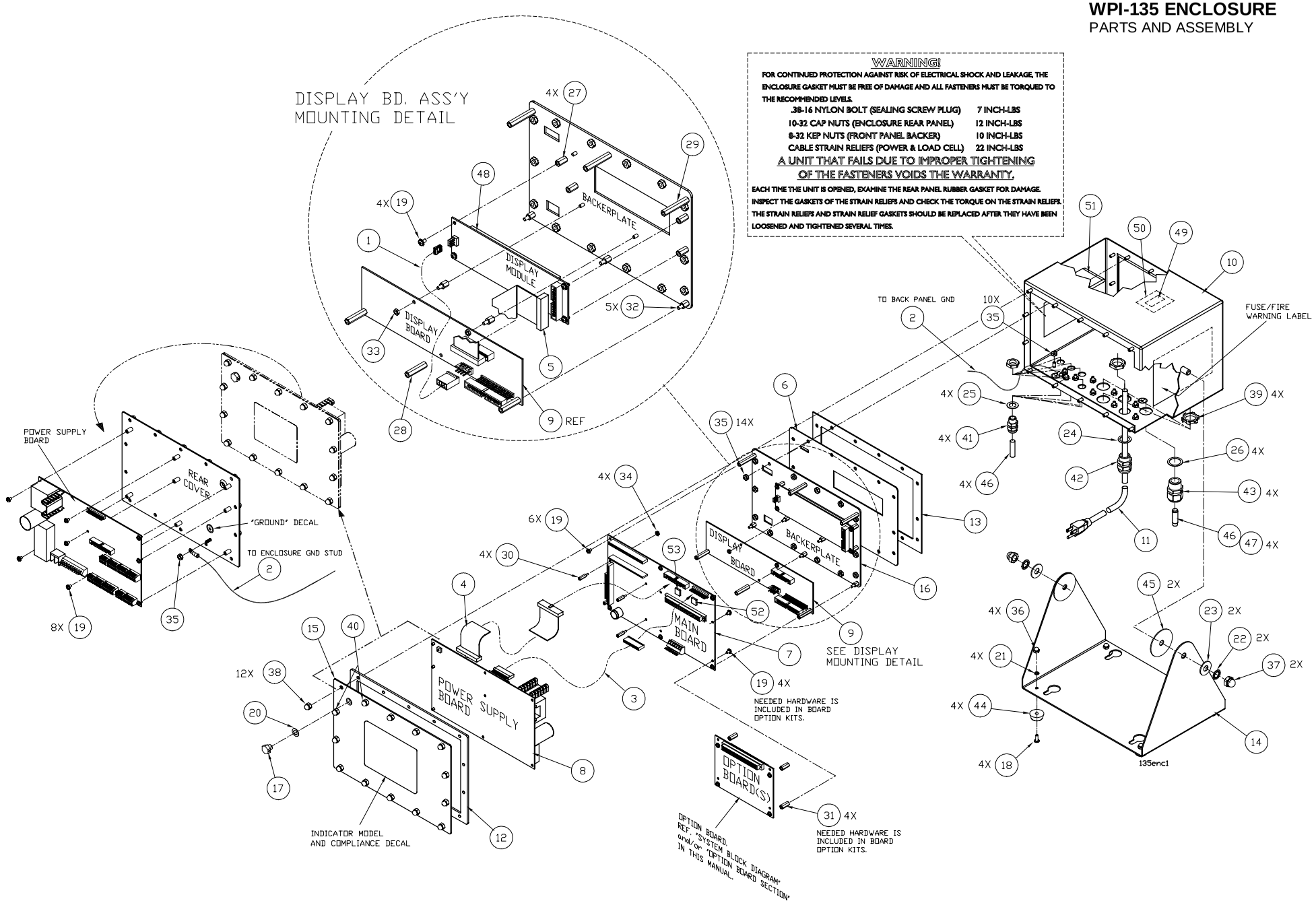
6. After the Constant value is established you may wish to lower the Samples to Average value to improve display response time.

7. After a final value for Constant and Samples to Average has been set, enter the Threshld value established in step 1. If this value is too small your scale will act as if the filtering is off or not working. Increase the Threshld value until your scale stabilizes.

   If the Threshld value is too high your scale will react slowly to weight changes.

   When Harmonizer is properly adjusted the scale will be stable at zero and will rapidly display a stable test weight value.

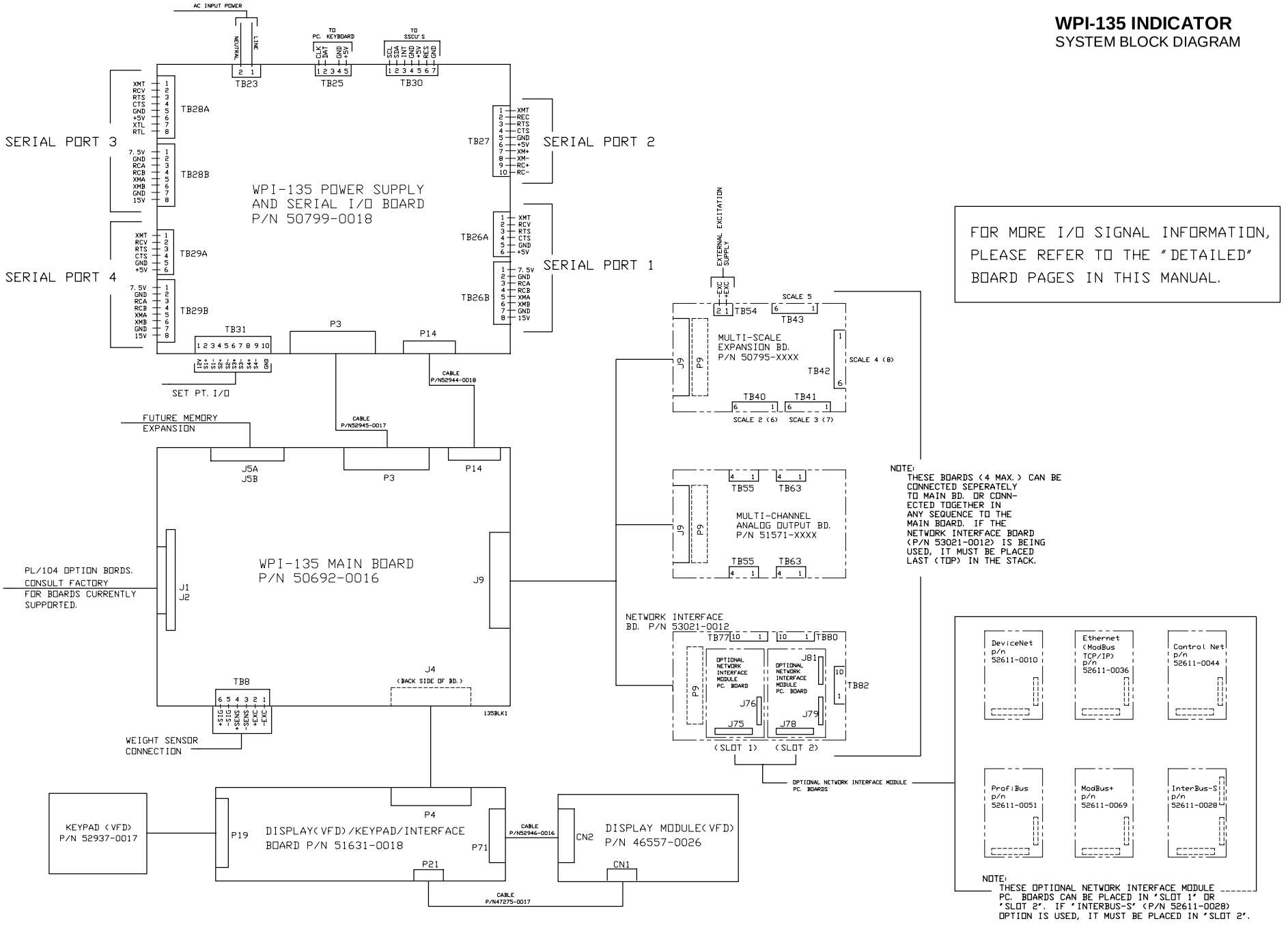
WPI-135 ENCLOSURE
PARTS AND ASSEMBLY



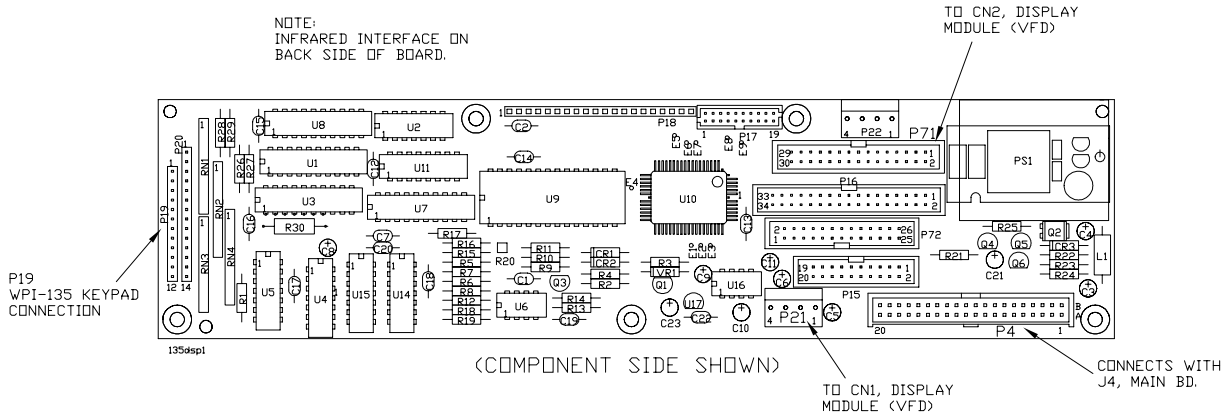
WPI-135 Parts List

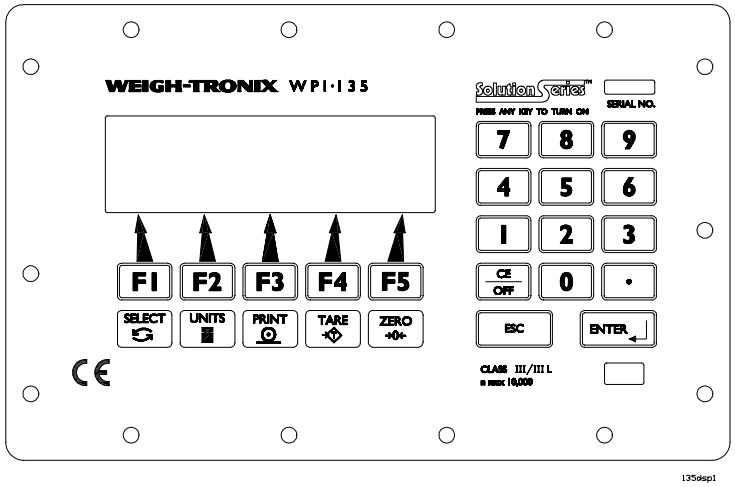
ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Power Cable assy (display bd. to displ. Module)	47275-0017	1
2	Ground Wire assy (enclosure to rear cover)	48712-016	1
3	Power Cable assy (power supply Bd. To main bd.)	52944-0018	1
4	Interface Cable assy (power supply Bd. To main bd.)	52945-0017	1
5	Display Interface Cable assy	52946-0016	1
6	Keypad Overlay	52937-0017	1
7	Main pc board assy	50692-0016	1
8	Power Supply board w/ Serial I/O	50799-0018	1
9	Display pc Board assy	51631-0018	1
10	WPI-135 Enclosure	52938-0024	1
11	Power Cord Kit (USA)	49180-0116	1
12	Rear Cover Gasket	52939-0015	1
13	Bezel (front) Gasket	52940-0012	1
14	Stand Bracket	52941-0011	1
15	Rear Cover	52942-0010	1
16	Keypad Backer Plate (vfd)	52943-0019	1
17	Nylon Plug (threaded)	1019-11926	1
18	Screw, # 8 x 7/16” L	14473-0363	4
19	Screw/Washer assy, #6 x ¼” L	26380-0021	18
20	Flat Washer (neoprene)	1030-12680	1
21	Lock Washer, #8	14474-0040	4
22	Tooth Washer, 3/8”	15698-0179	2
23	Flat Washer, 3/8”	16163-0066	2
24	Washer (neoprene)	26357-0038	1
25	Washer (neoprene)	26357-0046	4
26	Washer (neoprene)	26357-0053	4
27	Standoff, #6 x 1/2” L (f/f)	14510-0756	4
28	Standoff, #6 x 1 1/8” L (f/f)	14510-0814	3
29	Standoff, #6 x 1 1/2” L (f/f)	14510-0848	3
30	Standoff, #4 x 9/16” L (m/f)	15437-0191	4
31	Standoff, #6 x 5/8” L (f/f)	14510-0772	4
32	Standoff, #6 x 5/16” L (m/f)	15437-5026	5
33	Nut, #6	16064-0033	2
34	Kep Nut, #4	1025-00107	4
35	Kep Nut, #8	1025-00125	25
36	Cap Nut, #8	15771-0039	4
37	Cap Nut, 3/8”	15771-0070	2
38	Cap Nut, #10	15786-0016	12
39	Locking Nut ½” (notched)	17777-0021	4
40	Cap Nut #10 (modified)	26513-0013	2
41	Strain Relief (w/nut)	15257-0024	4
42	Strain Relief (w/nut)	15257-0040	1
43	Strain Relief (used w/ lock nut, item no. 39)	15257-0057	4
44	Rubber Bumper foot	15349-0024	4
45	Neoprene washer	19563-0025	2
46	Neoprene Cord (plug) for Strain relief (1/4” dia)	27429-0014	8” long
47	Neoprene Tubing, ¼”ID x 1/16” wall (used w/ item 46)	45089-0017	4” long
48	Display Module (VFD)	46557-0026	1
49	Foam Tape, 2-side sticky, ½”w x 1”L (used w/ item 50)	1045-05982	1
50	Dessicant bag	1088-12126	1
51	Corrosion Vapor Emitter	48680-0014	1
52	Standard WPI-135 E-Prom (U17)	52957-0012	1
53	Standard WPI-135 E-Prom (U18)	52957-0020	1

WPI-135 INDICATOR
SYSTEM BLOCK DIAGRAM

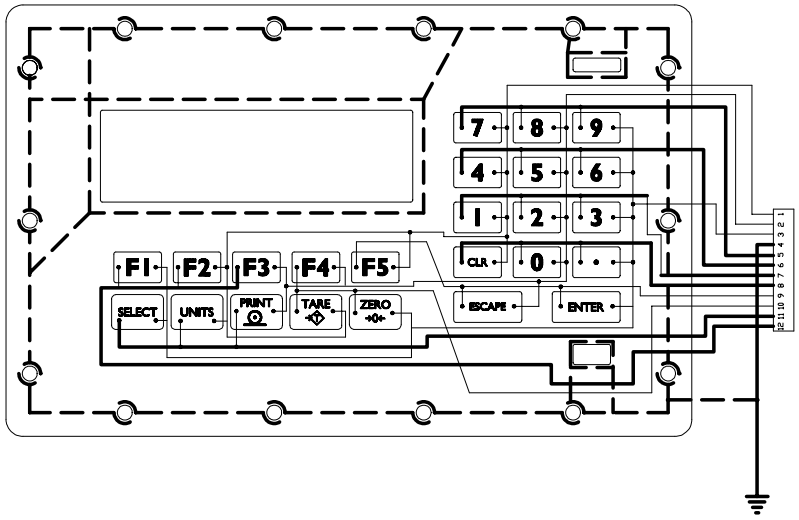


WPI-135 INDICATOR
DISPLAY/KEYPAD INTERFACE BOARD
P/N 51631-0018

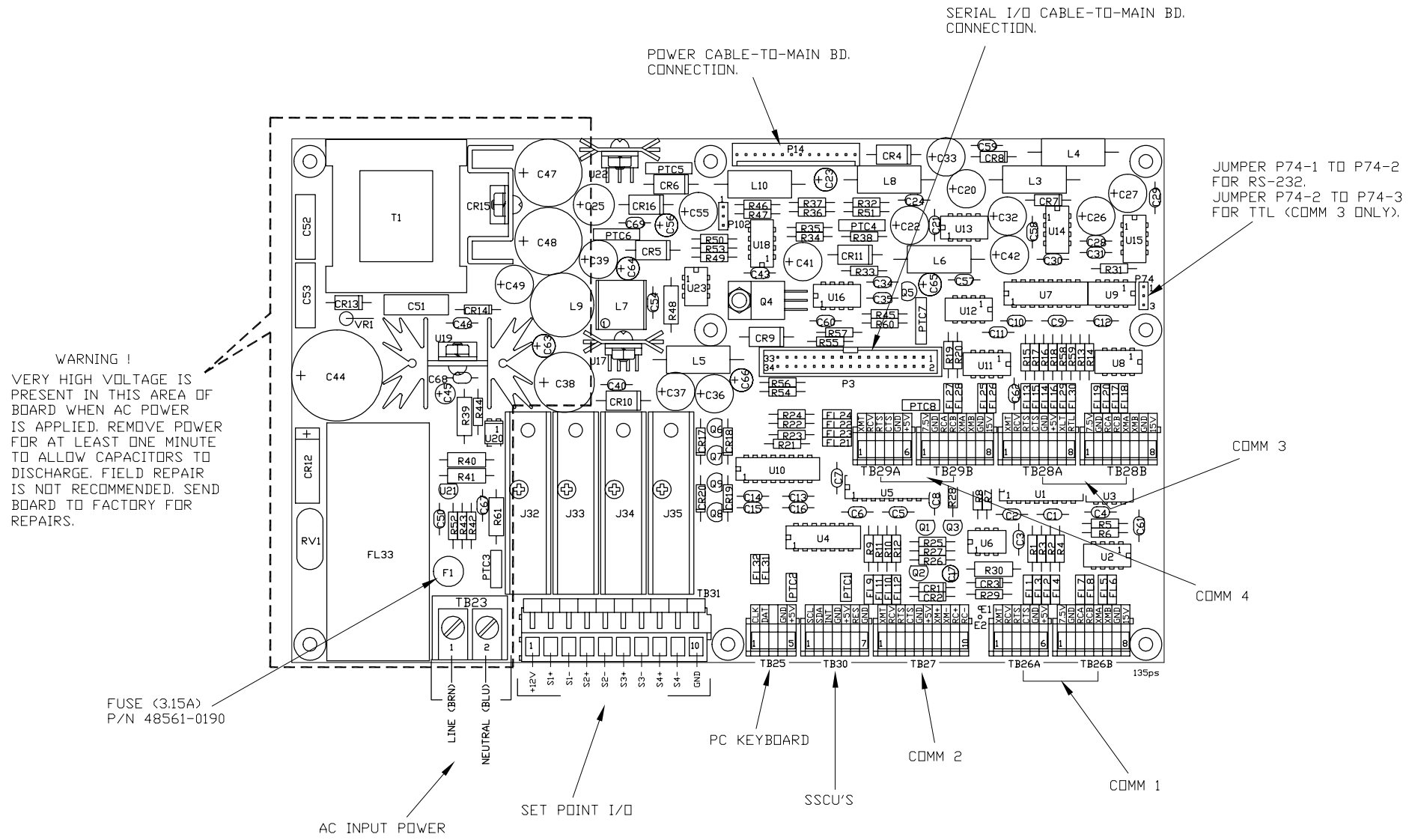




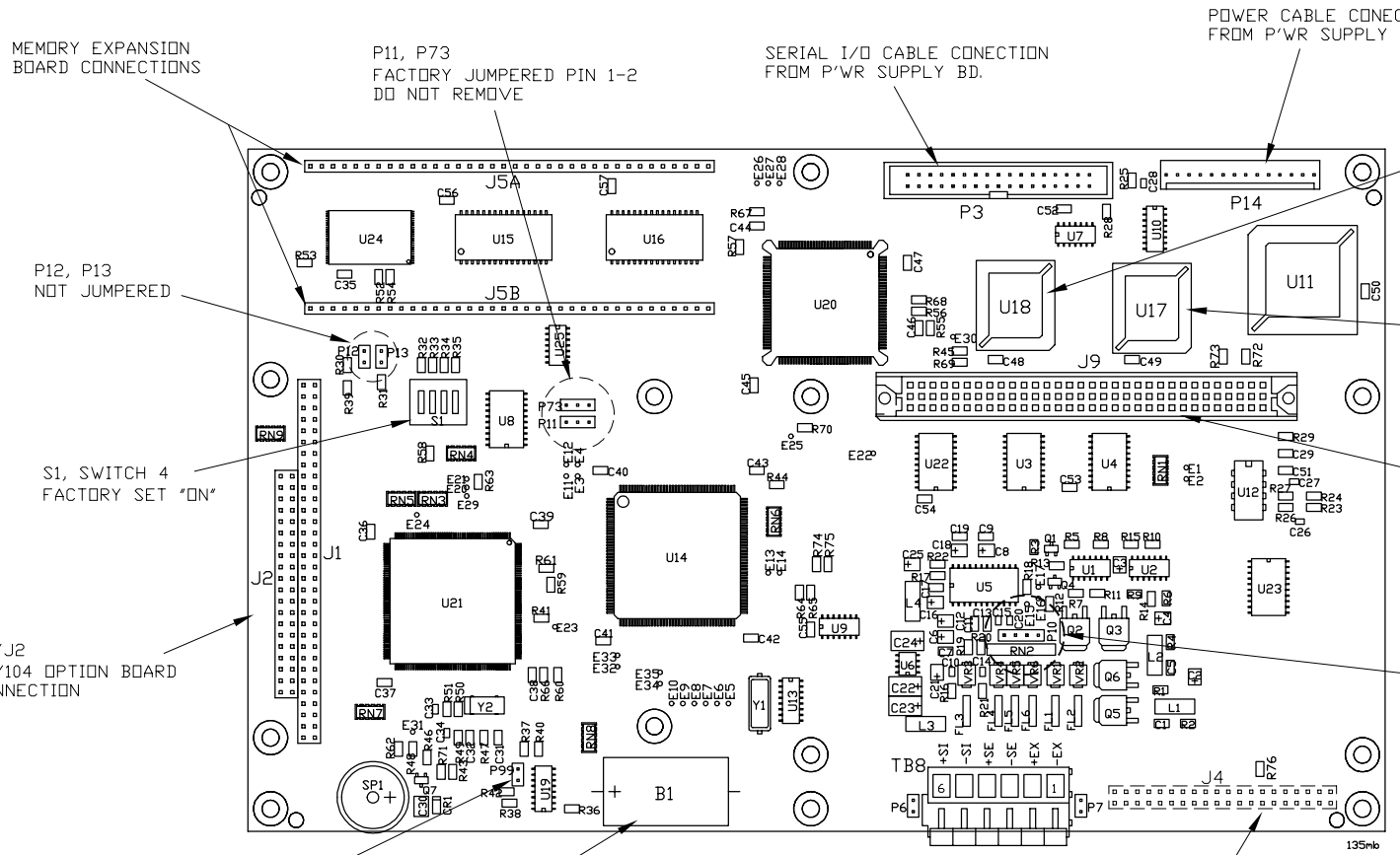
WPI-135 INDICATOR
KEYPAD *AND* SCHEMATIC
P/N 52937-0017



WPI-135 INDICATOR
POWER SUPPLY *AND* SERIAL I/O
PC BOARD P/N 50799-0018



WPI-135 INDICATOR
MAIN PC BOARD
P/N 50692-0016



EXCITATION CHART	
P36 thru P39 JUMPER POSITION	TYPICAL EXC VOLTAGE
TYPICAL 3-4	10.0
2-3	5.0
1-2	6.0
1-2,3-4	16.0

NOTE:
When using barriers, the two pin jumper is not connected and should be stored on pin-1. The barrier should drop the excitation voltage down to the range of (2.0 to 3.8 volts). If only one load cell is being used, the voltage could be greater than 3.8 volts. In this case, add a load resistor to increase the current through the barrier to drop the voltage.

CAUTION !

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.

REPLACE BATTERY (B1) ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER.

DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

REMOTE SENSING

P6 & 7 ARE JUMPERED WHEN THERE ARE NO SENSE LINES FROM WEIGHT PLATFORMS, UNJUMPERED WHEN THERE ARE SENSE LINES FROM WEIGHT PLATFORMS.

WPI-135 POWER SUPPLY / MAIN PC BOARD
TERMINAL *PIN-OUT* CHARTS

POWER SUPPLY BD		
TB25 - pin no.	***PC-KEYBOARD***	NOTES
1	CLOCK	(do not ground)
2	DATA	(do not ground)
3	NOT USED	
4	GROUND	
5	(+) 5.0 VDC	(do not ground)

POWER SUPPLY BD		
TB30-pin no.	***SSCU***	NOTES
1	SERIAL CLOCK	(do not ground)
2	SERIAL DATA	(do not ground)
3	INTERRUPT	(do not ground)
4	GROUND	
5	(+) 5.0 VDC	(do not ground)
6	RESET	(do not ground)
7	(SHIELD) GROUND	

POWER SUPPLY BD			
TB26-A pin no.	***COMM #1***	**SIGNAL**	NOTES
1	TRANSMIT	RS-232	data out (do not ground)
2	RECEIVE	RS-232	data in (do not ground)
3	RTS	RS-232	hardware handshaking out (do not ground)
4	CTS	RS-232	Hardware handshaking in (do not ground)
5	GROUND	RS-232	
6	(+) 5.0 VDC		(do not ground)
TB26-B pin no.			
1	(+) 7.5 VDC	QDT	(do not ground)
2	GROUND	QDT, RS422/485	
3	RECEIVE-A	QDT, RS422/485	data in (do not ground)
4	RECEIVE-B	QDT, RS422/485	data in (do not ground)
5	TRANSMIT-A	QDT, RS422/485	data out (do not ground)
6	TRANSMIT-B	QDT, RS422/485	data out (do not ground)
7	GROUND	QDT, RS422/485	
8	(+) 15 VDC		(do not ground)

POWER SUPPLY BD			
TB27 pin no.	***COMM #2***	**SIGNAL**	NOTES
1	TRANSMIT	RS-232	data out (do not ground)
2	RECEIVE	RS-232	data in (do not ground)
3	RTS	RS-232	hardware handshaking out (do not ground)
4	CTS	RS-232	Hardware handshaking in (do not ground)
5	GROUND	RS-232	
6	(+) 5.0 VDC		(do not ground)
7	TRANSMIT(+)	CURRENT LOOP	data out (do not ground)
8	TRANSMIT(-)	CURRENT LOOP	data out (do not ground)
9	RECEIVE(+)	CURRENT LOOP	data in (do not ground)
10	RECEIVE(-)	CURRENT LOOP	data in (do not ground)

POWER SUPPLY BD			
TB28-A pin no.	***COMM #3***	**SIGNAL**	NOTES
1	TRANSMIT	RS-232	DATA OUT (do not ground)
2	RECEIVE	RS-232	DATA IN (do not ground)
3	RTS	RS-232	hardware handshaking out (do not ground)
4	CTS	RS-232	Hardware handshaking in (do not ground)
5	GROUND	RS-232, *TTL, KB	
6	(+) 5.0 VDC	*TTL, KB	(do not ground)
7	XTL	*TTL	DATA OUT (do not ground)
8	RTL	*TTL, KB	DATA IN (do not ground)
TB28-B pin no.			
1	(+) 7.5 VDC	QDT	(do not ground)
2	GROUND	QDT, RS422/485	
3	RECEIVE-A	QDT, RS422/485	DATA IN (do not ground)
4	RECEIVE-B	QDT, RS422/485	DATA IN (do not ground)
5	TRANSMIT-A	QDT, RS422/485	DATA OUT (do not ground)
6	TRANSMIT-B	QDT, RS422/485	DATA OUT (do not ground)
7	GROUND	QDT, RS422/485	
8	(+) 15 VDC		(do not ground)

***TTL connections for TUFF KEY keyboard (KB) or other TTL serial connections.(ie radio link)
Jumper P74-1 to P74-2 for RS-232 ---------- Jumper P74-2 to P74-3 for TTL (comm #3 only)

POWER SUPPLY BD			
TB29-A pin no.	***COMM #4***	**SIGNAL**	NOTES
1	TRANSMIT	RS-232	DATA OUT (do not ground)
2	RECEIVE	RS-232	DATA IN (do not ground)
3	RTS	RS-232	hardware handshaking out (do not ground)
4	CTS	RS-232	Hardware handshaking in (do not ground)
5	GROUND	RS-232	
6	(+) 5.0 VDC		(do not ground)
TB29-B pin no.			
1	(+) 7.5 VDC	QDT	(do not ground)
2	GROUND	QDT, RS422/485	
3	RECEIVE-A	QDT, RS422/485	DATA IN (do not ground)
4	RECEIVE-B	QDT, RS422/485	DATA IN (do not ground)
5	TRANSMIT-A	QDT, RS422/485	DATA OUT (do not ground)
6	TRANSMIT-B	QDT, RS422/485	DATA OUT (do not ground)
7	GROUND	QDT, RS422/485	
8	(+) 15 VDC		(do not ground)

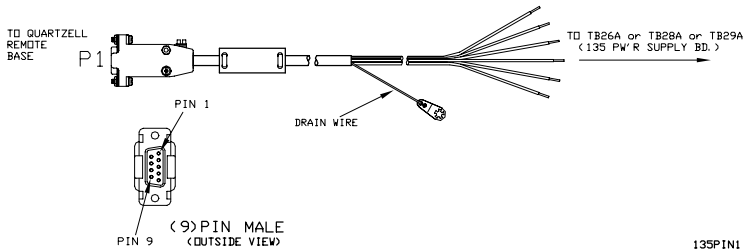
POWER SUPPLY BD		
TB31-pin no.	***SETPOINT INTERACE***	NOTES
1	+12VDC	(do not ground)
2	+ SETPOINT 1	
3	- SETPOINT 1	
4	+ SETPOINT 2	
5	- SETPOINT 2	
6	+ SETPOINT 3	
7	- SETPOINT 3	
8	+ SETPOINT 4	
9	- SETPOINT 4	
10	GROUND	

MAIN BD		
TB8-pin no.	***WEIGHT SENS INTERFACE***	NOTES
1	- EXCITATION	(do not ground)
2	+ EXCITATION	(do not ground)
3	- SENSE	(do not ground)
4	+ SENSE	(do not ground)
5	- SIGNAL	(do not ground)
6	+ SIGNAL	(do not ground)

WPI-135 TO QUARTZELL REMOTE BASE CABLE ASSY P/N 49385-LENGTH

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION (TB26B or TB28B or TB29B)	SIGNAL
GREEN	P1-7	PIN-5	XMT A
YELLOW	P1-3	PIN-6	XMT B
WHITE	P1-8	PIN-3	REC A
BLUE	P1-2	PIN-4	REC B
RED	P1-1	PIN-1	+7.5 V
BLACK	P1-5	PIN-2	LOGIC GROUND
SHIELD	SHELL	GND STUD	SHIELD

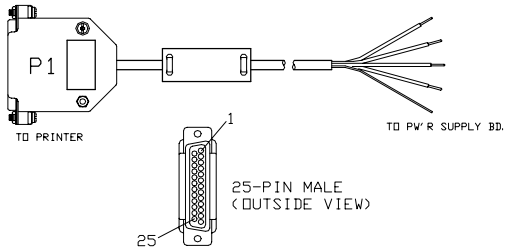
SIGNAL NAMES ARE FROM INDICATOR



135PIN1

PRINTER TO WPI-135 CABLE ASSY P/N 47670-0018

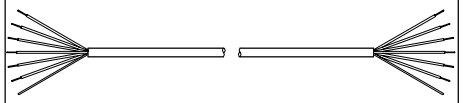
W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION PW'R SUPPLY BOARD (TB26A or TB27 or TB28A or TB29A)	SIGNAL
SHIELD	P1-1	GND STUD	(CHASSIS) GND
GRN	P1-2	PIN-2	RECEIVE
RED	P1-3	PIN-1	TRANSMIT
BLK	P1-7	PIN-5	SIGNAL GND
WHT	P1-11	PIN-4	CLEAR TO SEND
BLK	P1-4	PIN-3	RTS



135PIN1

SSCU / EXTERNAL I/O BOARD TO WPI-135 CABLE ASSY P/N 47388-0011

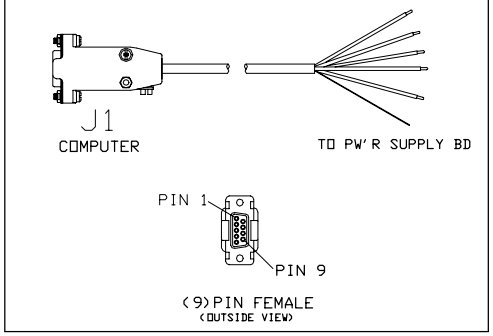
W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
ORANGE	TB30 (1)P/S BD	TB-35-OR-TB37 (1)	SERIAL CLOCK
YELLOW	TB30 (2)P/S BD	TB-35-OR-TB37 (2)	SERIAL DATA
GREEN	TB30 (3)P/S BD	TB-35-OR-TB37 (3)	$\overline{\text{INTERRUPT}}$
BLACK	TB30 (4)P/S BD	TB-35-OR-TB37 (4)	(LOGIC) GROUND
RED	TB30 (5)P/S BD	TB-35-OR-TB37 (5)	+5 VOLTS
BROWN	TB30 (6)P/S BD	TB-35-OR-TB37 (6)	$\overline{\text{RESET}}$
SHIELD	GND STUD	CHASSIS	(SHIELD) GND



135PIN1

COMPUTER TO WPI-135 CABLE ASSYP/N 47355-0010 AND/OR -0028

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION PW'R SUPPLY BOARD (TB26A or TB27 or TB28A or TB29A)	SIGNAL
RED	J1-2	PIN-1	TRANSMIT
GREEN	J1-3	PIN-2	RECEIVE
BLACK	J1-5	PIN-5	(SIGNAL) GND
YELLOW	J1-8	PIN-3	RTS
BROWN	J1-7	PIN-4	CTS
	SHIELD	GND STUD	(CHASSIS) GND



135PIN1

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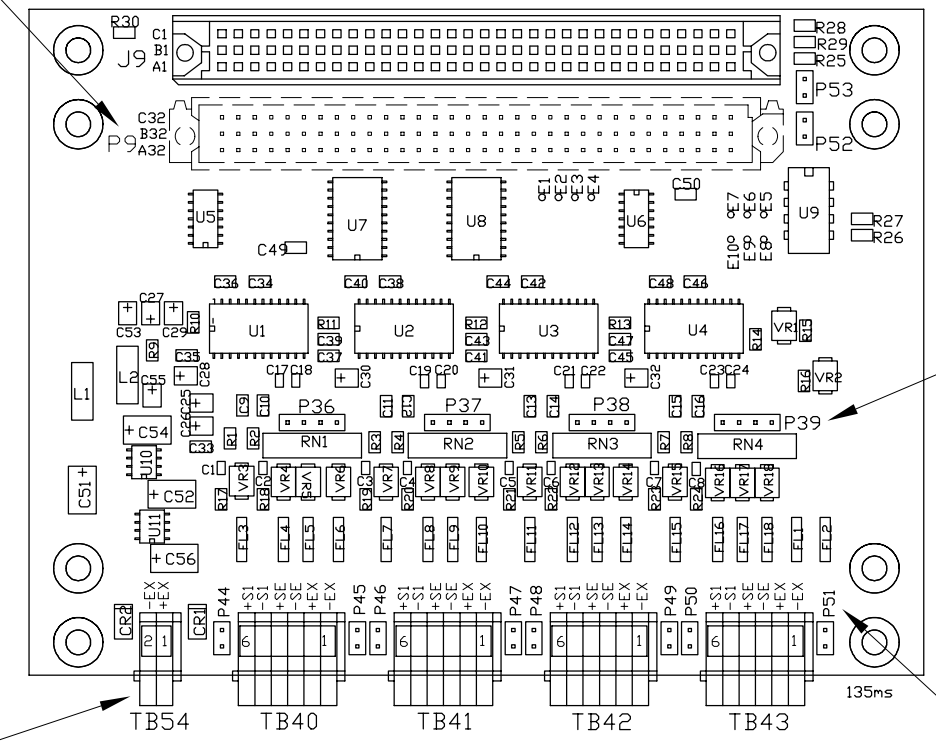
WPI-135 INDICATOR MULTI SCALE BOARD *(OPTIONAL)*

P/N 50795: **-0012** (2(6) SCALE INTERFACE), **-0020** (3(7) SCALE INTERFACE), **-0038** (4(8) SCALE INRERFACE), **-0046** (5 SCALE INTERFACE)

P9 (BACK SIDE OF BD) CONNECTS DIRECTLY TO J9, MAIN BD.



INTERNAL POWER SOURCE:
JUMPER P52 & P53

EXTERNAL POWER SOURCE:
P52 & P53 NOT JUMPERED

EXCITATION CHART	
P36 thru P39 JUMPER POSITION	TYPICAL EXC VOLTAGE
TYPICAL 3-4	10.0
2-3	5.0
1-2	6.0
1-2,3-4	16.0

NOTE:
When using barriers, the two pin jumper is not connected and should be stored on pin-1. The barrier should drop the excitation voltage down to the range of (2.0 to 3.8 volts) . If only one load cell is being used, the voltage could be greater than 3.8 volts. In this case, add a load resistor to increase the current through the barrier to drop the voltage.

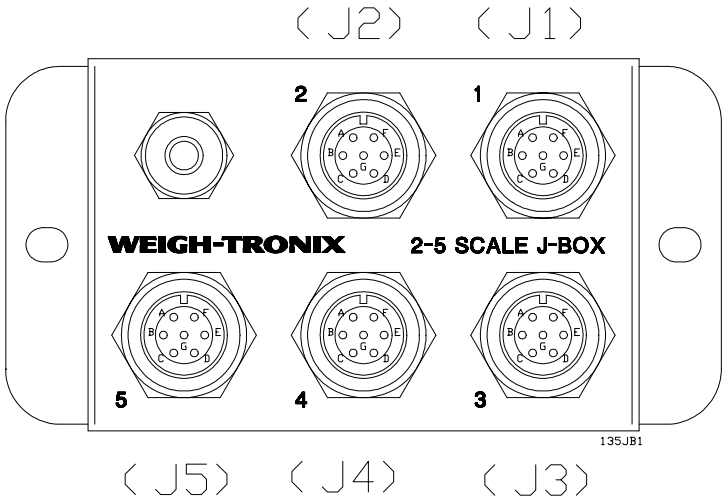
INPUT FOR EXTERNAL PWR SOURCE FOR MORE THAN 32 WEIGHT SENSORS
(+12 VDC WITH ISOLATED GND.)

REMOTE SENSING:
JUMPER P44, P45, P46, P47, P48, P49, P50, P51 WHEN THERE ARE NO SENSE LINES FROM WEIGHT PLATFORMS.
NOT JUMPERED WHEN THERE ARE SENSE LINES FROM WEIGHT PLATFORMS.

SCALE 2(6) SCALE 3(7) SCALE 4(8) SCALE 5

SCALE 1
(ON MAIN BD)

WPI-135 *(2 through 5 SCALES)* **J-BOX ASSEMBLY**
P/N 47404: -0011 (2-SCALES), **-OO29** (3-SCALES), **-0037** (4-SCALES), **-0045** (5-SCALES) .



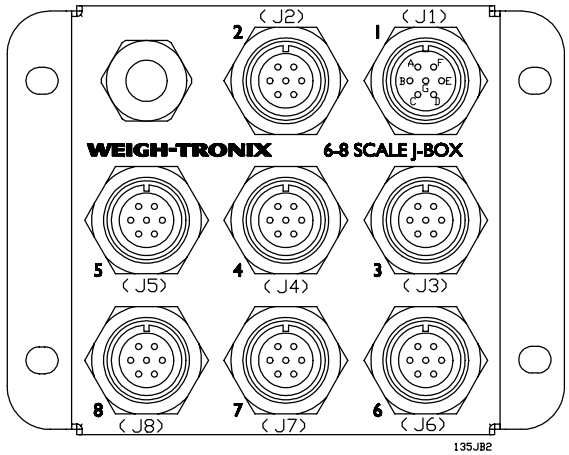
		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MAIN PC. BOARD P/N 50692-0016		
SCALE 1	BLACK	TB8-1	J1-D	-EXC-1
	GREEN	TB8-2	J1-B	+EXC-1
	BLUE	TB8-3	J1-E	-SENSE-1
	YELLOW	TB8-4	J1-F	+SENSE-1
	RED	TB8-5	J1-A	-SIGNAL-1
	WHITE	TB8-6	J1-C	+SIGNAL-1
	BLACK	GND-1	J1-G	SHIELD-1
		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
SCALE 2	WHT/BRN	TB40-1	J2-D	-EXC-2
	BROWN	TB40-2	J2-B	+EXC-2
	WHT/BLK	TB40-3	J2-E	-SENSE-2
	ORANGE	TB40-4	J2-F	+SENSE-2
	GRAY	TB40-5	J2-A	-SIGNAL-2
	VIOLET	TB40-6	J2-C	+SIGNAL-2
	BLACK	GND-1	J2-G	SHIELD-2
	SHIELD		GND-1	DRAIN WIRE

		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
SCALE 3	WHT/BRN	J2-D	J3-D	-EXC-3
	BROWN	J2-B	J3-B	+EXC-3
	WHT/BLU	TB41-3	J3-E	-SENSE-3
	WHT/RED	TB41-4	J3-F	+SENSE-3
	WHT/GRN	TB41-5	J3-A	-SIGNAL-3
	WHT/YEL	TB41-6	J3-C	+SIGNAL-3
	BLACK	J2-G	J3-G	SHIELD-3

		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
SCALE 4	WHT/BRN	J3-D	J4-D	-EXC-4
	BROWN	J3-B	J4-B	+EXC-4
	WHT/BLK/RED	TB42-3	J4-E	-SENSE-4
	WHT/VIO	TB42-4	J4-F	+SENSE-4
	WHT/BLK/BRN	TB42-5	J4-A	-SIGNAL-4
	WHT/GRA	TB42-6	J4-C	+SIGNAL-4
	BLACK	J3-G	J4-G	SHIELD-4

		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
SCALE 5	WHT/BRN	J4-D	J5-D	-EXC-5
	BROWN	J4-B	J5-B	+EXC-5
	WHT/BLK/BLU	TB43-3	J5-E	-SENSE-5
	WHT/BLK/ORN	TB43-4	J5-F	+SENSE-5
	WHT/BLK/GRN	TB43-5	J5-A	-SIGNAL-5
	WHT/BLK/YEL	TB43-6	J5-C	+SIGNAL-5
	BLACK	J4-G	J5-G	SHIELD-5

WPI-135 *(6 through 8 SCALES)* **J-BOX ASSEMBLY**
P/N 47405: -0010 *(6 SCALES)*, **-0028** *(7 SCALES)*, **-0036** *(8 SCALES)*



		WIRE IDENTIFICATION J-BOX 47405		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
SCALE 1		MAIN PC. BOARD P/N 50692-0016		
	BLACK	TB8-1	J1-D	-EXC-1
	GREEN	TB8-2	J1-B	+EXC-1
	BLUE	TB8-3	J1-E	-SENSE-1
	YELLOW	TB8-4	J1-F	+SENSE-1
	RED	TB8-5	J1-A	-SIGNAL-1
	WHITE	TB8-6	J1-C	+SIGNAL-1
	BLACK	GND-1	J1-G	SHIELD-1
SCALE 2		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
	WHT/BRN	TB40-1	J2-D	-EXC-2
	BROWN	TB40-2	J2-B	+EXC-2
	WHT/BLK	TB40-3	J2-E	-SENSE-2
	ORANGE	TB40-4	J2-F	+SENSE-2
	GRAY	TB40-5	J2-A	-SIGNAL-2
	VIOLET	TB40-6	J2-C	+SIGNAL-2
	BLACK	GND-1	J2-G	SHIELD-2
SCALE 3		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
	WHT/BRN	J2-D	J3-D	-EXC-3
	BROWN	J2-B	J3-B	+EXC-3
	WHT/BLU	TB41-3	J3-E	-SENSE-3
	WHT/RED	TB41-4	J3-F	+SENSE-3
	WHT/GRN	TB41-5	J3-A	-SIGNAL-3
	WHT/YEL	TB41-6	J3-C	+SIGNAL-3
	BLACK	J2-G	J3-G	SHIELD-3
SCALE 4		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
	WHT/BRN	J3-D	J4-D	-EXC-4
	BROWN	J3-B	J4-B	+EXC-4
	WHT/BLK/RED	TB42-3	J4-E	-SENSE-4
	WHT/VIO	TB42-4	J4-F	+SENSE-4
	WHT/BLK/BRN	TB42-5	J4-A	-SIGNAL-4
	WHT/GRA	TB42-6	J4-C	+SIGNAL-4
	BLACK	J3-G	J4-G	SHIELD-4
SCALE 5		MULTI-SCALE BD P/N 50795, SCALE 2 THRU 5		
	WHT/BRN	J4-D	J5-D	-EXC-5
	BROWN	J4-B	J5-B	+EXC-5
	WHT/BLK/BLU	TB43-3	J5-E	-SENSE-5
	WHT/BLK/ORN	TB43-4	J5-F	+SENSE-5
	WHT/BLK/GRN	TB43-5	J5-A	-SIGNAL-5
	WHT/BLK/YEL	TB43-6	J5-C	+SIGNAL-5
	BLACK	J4-G	J5-G	SHIELD-5
	SHIELD		GND-1	DRAIN WIRE

		WIRE IDENTIFICATION J-BOX 47405		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
SCALE 6		MULTI-SCALE BD P/N 50795, SCALE 6 THRU 8		
	WHT/BRN/YEL	TB40-1	J6-D	-EXC-6
	WHT/ORN	TB40-2	J6-B	+EXC-6
	WHT/BRN/ORN	TB40-3	J6-E	-SENSE-6
	WHT/BLK/VIO	TB40-4	J6-F	+SENSE-6
	WHT/BRN/RED	TB40-5	J6-A	-SIGNAL-6
	WHT/BLK/GRA	TB40-6	J6-C	+SIGNAL-6
	BLACK	GND-1	J6-G	SHIELD-6
SCALE 7		MULTI-SCALE BD P/N 50795, SCALE 6THRU 8		
	WHT/BRN	J6-D	J7-D	-EXC-7
	BROWN	J6-B	J7-B	+EXC-7
	WHT/BRN/GRA	TB41-3	J7-E	-SENSE-7
	WHT/BRN/GRN	TB41-4	J7-F	+SENSE-7
	WHT/BRN/VIO	TB41-5	J7-A	-SIGNAL-7
	WHT/BRN/BLU	TB41-6	J7-C	+SIGNAL-7
	BLACK	J6-G	J5-G	SHIELD-7
SCALE 8		MULTI-SCALE BD P/N 50795, SCALE 6 THRU 8		
	WHT/BRN	J7-D	J8-D	-EXC-8
	BROWN	J7-B	J8-B	+EXC-8
	WHT/RED/BLU	TB42-3	J8-E	-SENSE-8
	WHT/RED/ORN	TB42-4	J8-F	+SENSE-8
	WHT/RED/GRN	TB42-5	J8-A	-SIGNAL-8
	WHT/RED/YEL	TB42-6	J8-C	+SIGNAL-8
	BLACK	J7-G	J8-G	SHIELD-8

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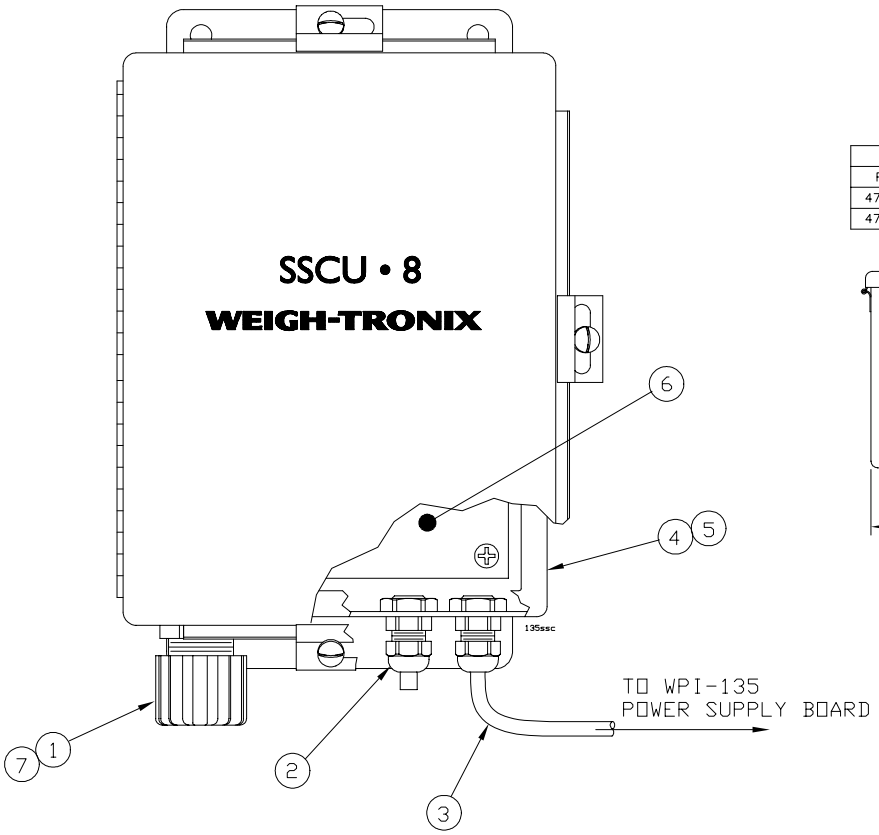
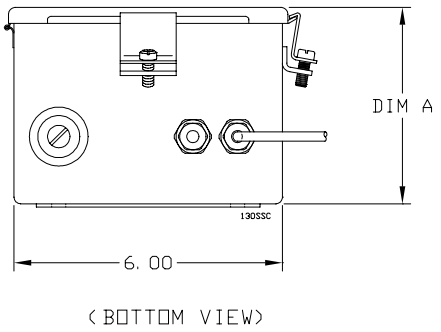
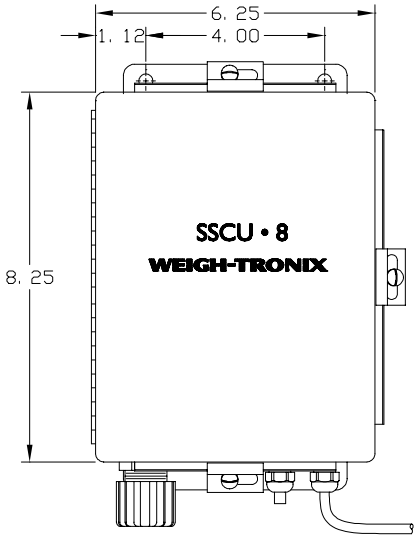
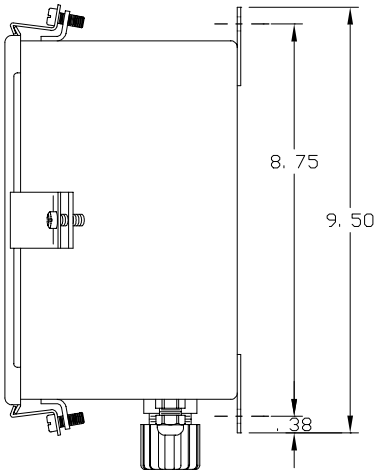


DATA CHART		
PART NO.	DIM 'A'	DESCRIPTION
47192-0017	4.38	STAINLESS
47192-0025	3.87	PAINTED CARBON







ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Strain Relief	22380-0053	1
2	Strain Relief	15257-0024	2
3	Cable , (SSCU-To-WPI-135)	47388-0011	1
4	Enclosure (Steel, Painted)	47665-0015	1
5	Enclosure (Stainless)	47665-0023	1
6	Remote Exp. Control I/O Pc Bd	47183-0018	1
7	Lock Nut (Self Sealing)	22381-0011	1

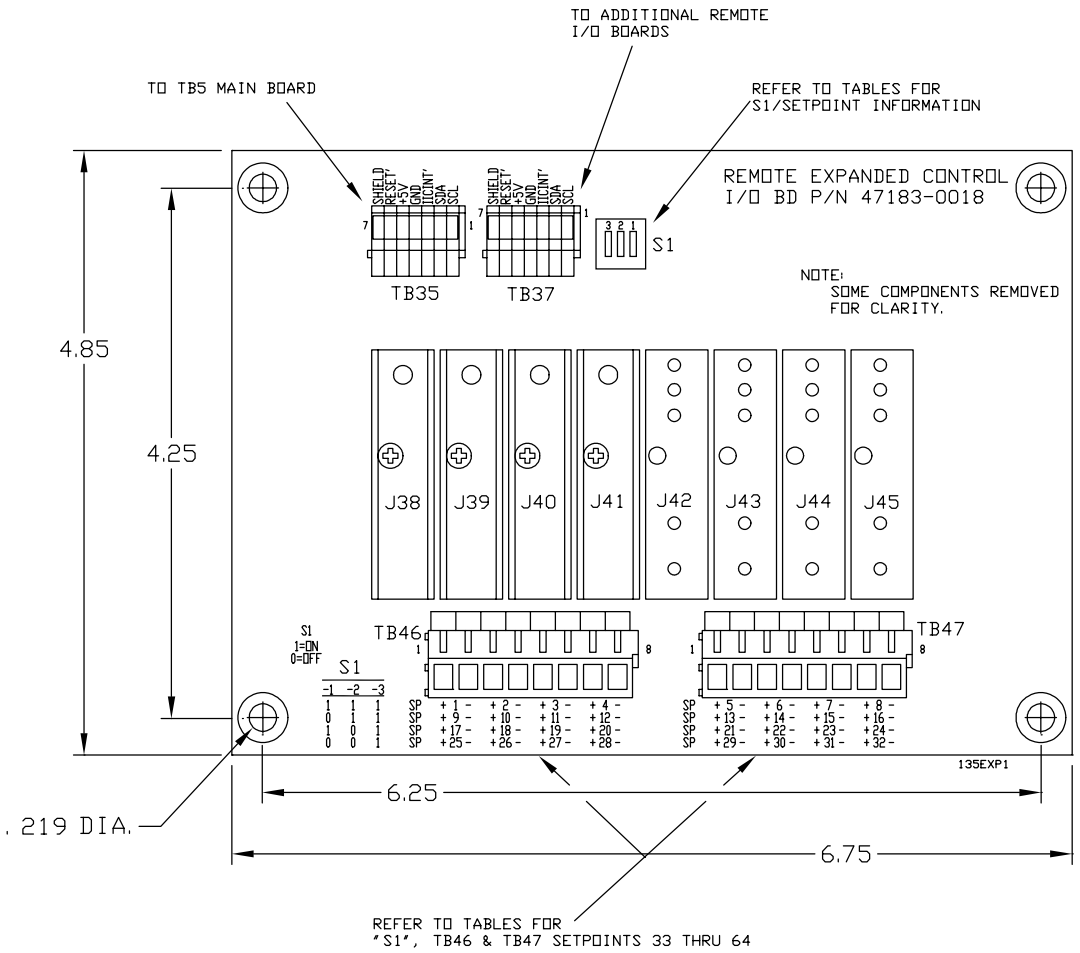


Table 1: Setpoints 33 thru 40

SW1 (1)ON	(2)ON	(3)OFF
SETPOINT #	TB #	PIN #
33 (+)	46	1
33 (-)	46	2
34 (+)	46	3
34 (-)	46	4
35 (+)	46	5
35 (-)	46	6
36 (+)	46	7
36 (-)	46	8
37 (+)	47	1
37 (-)	47	2
38 (+)	47	3
38 (-)	47	4
39 (+)	47	5
39 (-)	47	6
40 (+)	47	7
40 (-)	47	8

Table 2: Setpoints 41 thru 48

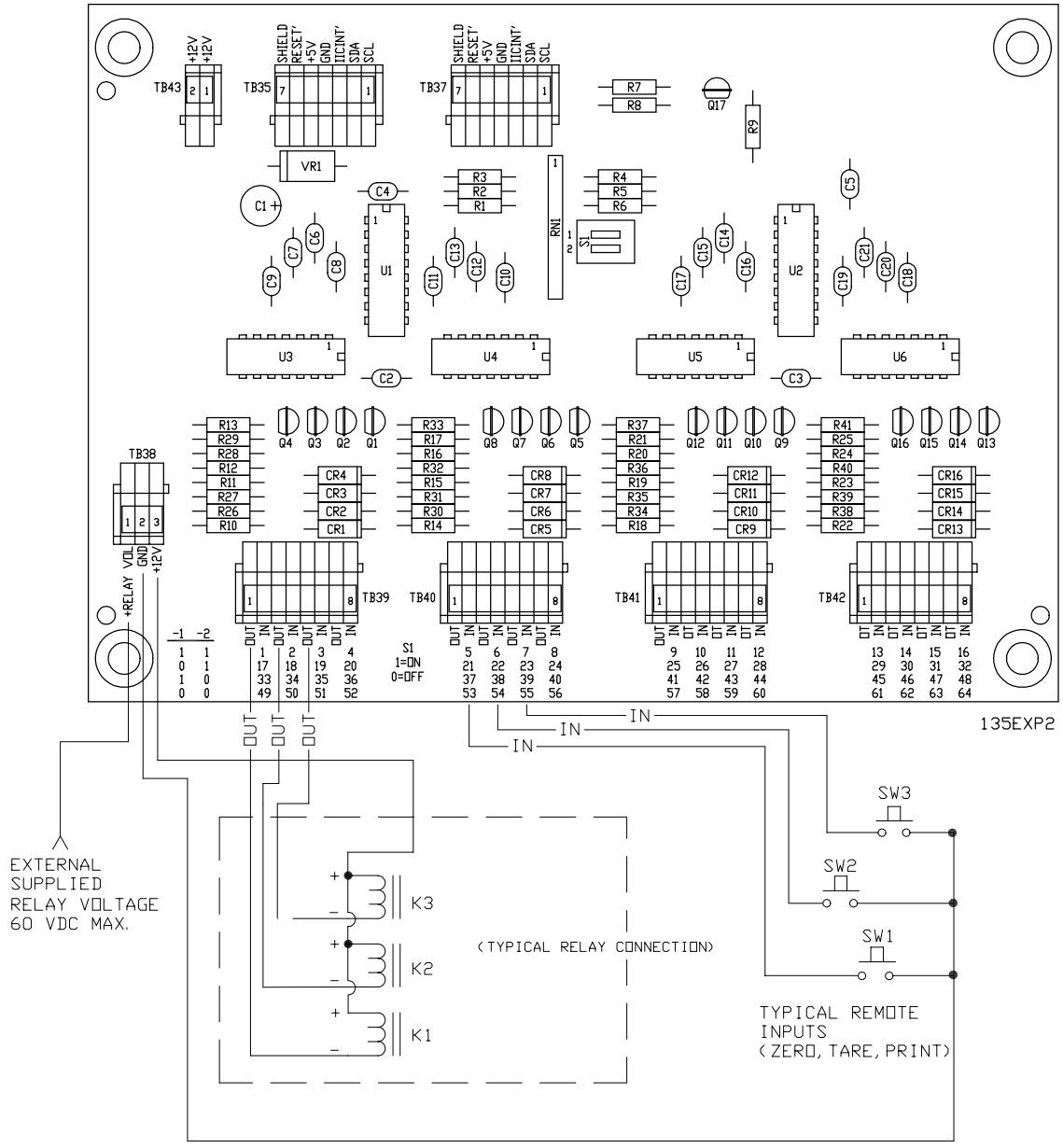
SW1 (1)OFF	(2)ON	(3)OFF
SETPOINT #	TB #	PIN #
41 (+)	46	1
41 (-)	46	2
42 (+)	46	3
42 (-)	46	4
43 (+)	46	5
43 (-)	46	6
44 (+)	46	7
44 (-)	46	8
45 (+)	47	1
45 (-)	47	2
46 (+)	47	3
46 (-)	47	4
47 (+)	47	5
47 (-)	47	6
48 (+)	47	7
48 (-)	47	8

Table 3: Setpoints 49 thru 56

SW1 (1)ON	(2)OFF	(3)OFF
SETPOINT #	TB #	PIN #
49 (+)	46	1
49 (-)	46	2
50 (+)	46	3
50 (-)	46	4
51 (+)	46	5
51 (-)	46	6
52 (+)	46	7
52 (-)	46	8
53 (+)	47	1
53 (-)	47	2
54 (+)	47	3
54 (-)	47	4
55 (+)	47	5
55 (-)	47	6
56 (+)	47	7
56 (-)	47	8

Table 4: Setpoints 57 thru 64

SW1 (1)OFF	(2)OFF	(3)OFF
SETPOINT #	TB #	PIN #
57 (+)	46	1
57 (-)	46	2
58 (+)	46	3
58 (-)	46	4
59 (+)	46	5
59 (-)	46	6
60 (+)	46	7
60 (-)	46	8
61 (+)	47	1
61 (-)	47	2
62 (+)	47	3
62 (-)	47	4
63 (+)	47	5
63 (-)	47	6
64 (+)	47	7
64 (-)	47	8


TB43
TB35
TB37
SHIELD
RESET'
+5V
GND
IICINT'
SDA
SCL
+12V
+12V
VR1
C1
C2
C3
C4
U1
U2
U3
U4
U5
U6
RN1
S1
R1
R2
R3
R4
R5
R6
R7
R8
R9
Q17
TB38
VDL
GND
+12V
+RELAY
TB39
TB40
TB41
TB42
S1
1=ON
0=OFF
135EXP2
OUT
IN
EXTERNAL
SUPPLIED
RELAY VOLTAGE
60 VDC MAX.
K3
K2
K1
(TYPICAL RELAY CONNECTION)
SW3
SW2
SW1
TYPICAL REMOTE
INPUTS
(ZERO, TARE, PRINT)

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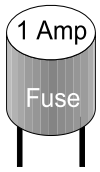
Setpoint Operation

If setpoints 1 thru 4 are programmed in SimPoser as inputs, the physical location for these will always be on the power supply TB31. The setpoint location for setpoints 1 thru 4 on the option card(s) will then be invalid, and do not function.

If setpoints 1 thru 4 are programmed in SimPoser for outputs, the TB31 location on the power supply board will act in parallel to the physical location of setpoints 1 thru 4 (set by switches on remote expanded control PCBs) on the option card(s).

When only using OPTO modules (4 maximum) on the power supply board without any setpoint option cards, they can be used as either inputs or outputs. We recommend low voltage OPTO modules on the power supply board.



Opto-22 Output Module Fuse Table

W-T P/N 46618	Rated Current (amp)	Wickmann TR5-F P/N	W-T P/N 46618	Rated Current (amp)	Wickmann TR5-F P/N
-0015	.050	19373K-50A	-0122	.630	19373K-630A
-0023	.063	19373K-63A	-0130	.800	19373K-800A
-0031	.080	19373K-80A	-0148	1.0	19373K-1A
-0049	.100	19373K-100A	-0155	1.25	19373K-1,25A
-0056	.125	19373K-125A	-0163	1.6	19373K-1,6A
-0064	.160	19373K-160A	-0171	2.0	19373K-2A
-0072	.200	19373K-200A	-0189	2.5	19373K-2,5A
-0080	.250	19373K-250A	-0197	3.15	19373K-3,15A
-0098	.315	19373K-315A	-0205	4.0	19373K-4A
-0106	.400	19373K-400A	-0213	5.0	19373K-5A
-0114	.500	19373K-500A	-0221	6.3	19373K-6,3A

OPTO-22 CONTROL INTERFACE DEVICES
Specifications

The OPTO-22 Generation 4 I/O modules can be used on the power supply board (max. 4) or on the optional Remote Expanded Control Interface Boards (max. 64).

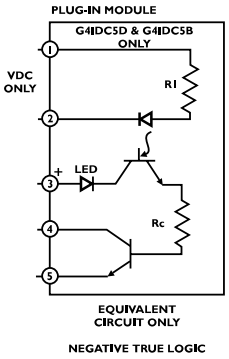
P/N 48552	OPTO-22 P/N	I/O Type AC or DC Input or Output	Color	External circuit voltage range	External circuit Max. Current	Turn on time msec.	Turn off time msec.	I/O operating temperature range
-0019	G4IDC5D	DC only (input)	White	2.5-28 vdc only	30mA	1.0	1.5	-30°Cto 70°C
-0027	G4IDC5B	DC only (input)	White	4.0-16 vdc only	45mA	0.05	0.1	-30°Cto 70°C
-0035	G4IDC5	AC/DC (input)	White	12-32	25mA	5	5	-30°Cto 70°C
-0043	G4IDC5G	AC/DC (input)	White	35-60	25mA	10	15	-30°Cto 70°C
-0050	G4IAC5	AC/DC (input)	Yellow	90-140	11mA	11	20	-30°Cto 70°C
-0068	G4IAC5A	AC/DC(input)	Yellow	180-280	6.5mA	2	20	-30°Cto 70°C
-0076	G4ODC5	DC ouput N.O. Normally Open	Red	5-60 vdc only	3A@45°C 2A@70°C	100	750	-30°Cto 70°C
-0084	G4ODC5A	DC (output) N.O. Normally Open	Red	5-200 vdc only	1A@45°C 0.55A@70°C	100	750	-30°Cto 70°C
-0092	G4OAC5	AC (output) N.O. Normally Open	Black	12-140 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0100	G4OAC5A	AC (output) N.O. Normally Open	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0118	G4OAC5A5	AC (output) N.C. Normally Closed	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0126	G4ODC5R	AC/DC (output) N.O. Dry contact Normally Open	Red	130VAC/100VDC	1.5A	500	500	0°C to 70°C
-0134	G4ODC5R5	AC/DC (output) N.C. Dry contact Normally Closed	Red	130VAC/100VDC	1.5A	500	500	0°C to 70°C

Each I/O module has an LED that lights indicating an active state. The output modules also have a replaceable fuse for circuit protection. These modules are LOW CURRENT devices. Refer to OPTO-22 data specifications for additional information.

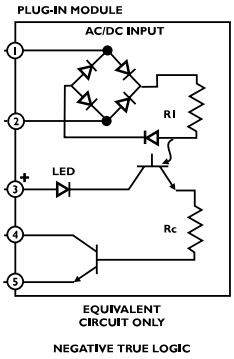
Below is a diagrm of the different I/O control modules:

A	B	C	D	E
46571-0010	46571-0036, 46571-0044	46571-0077	46571-0093	46571-0127
46571-0028	46571-0051, 46571-0069	46571-0085	46571-0101	46571-0135
			46571-0119	

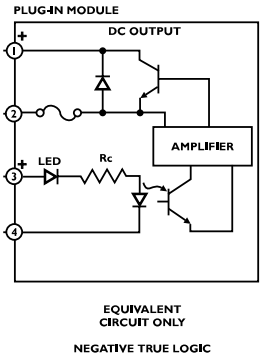
A



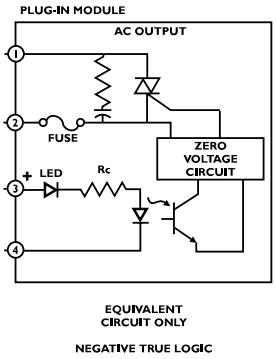
B



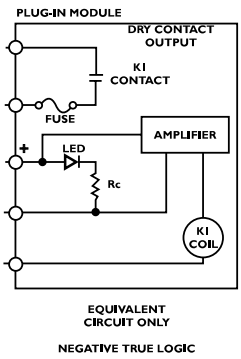
C

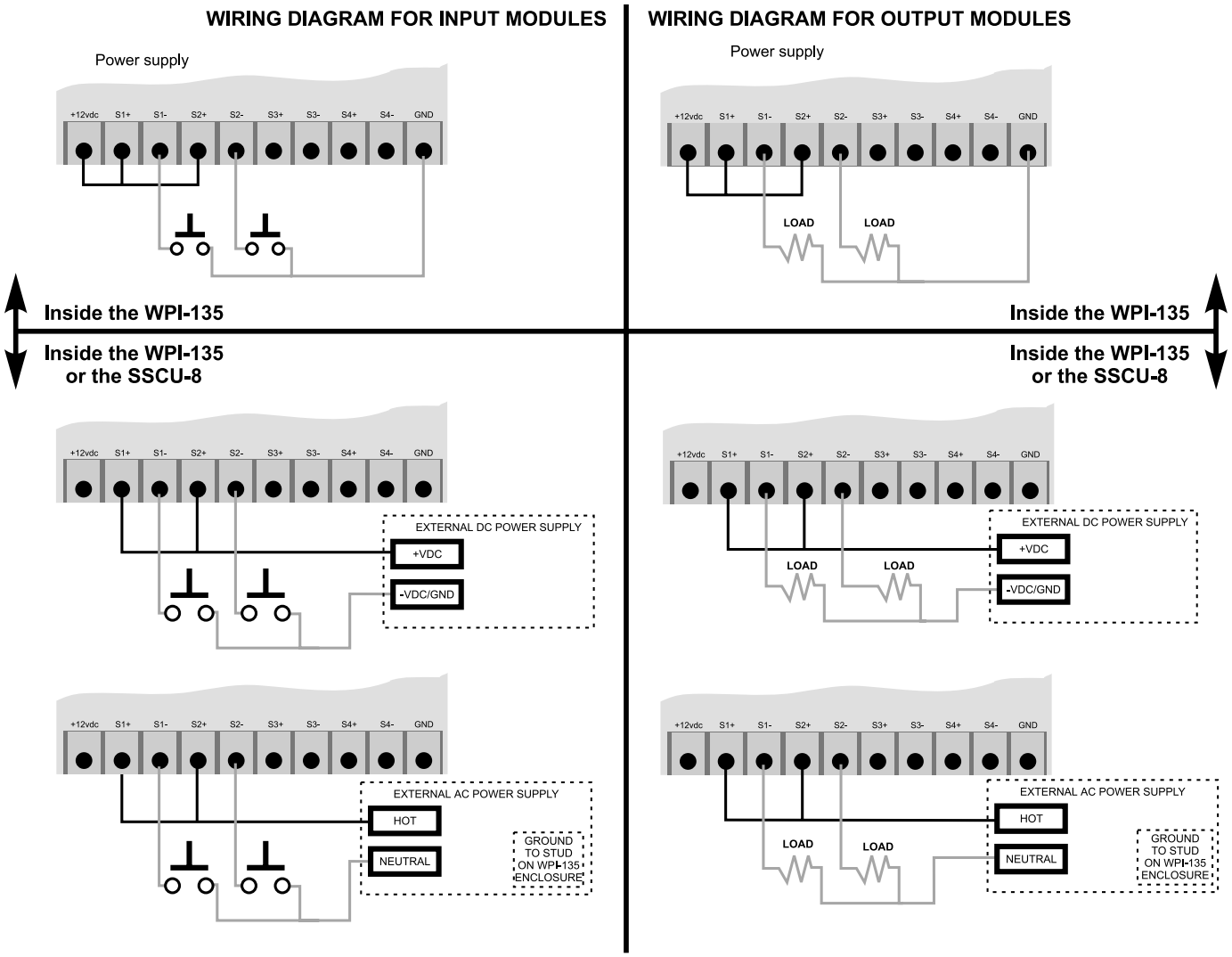


D



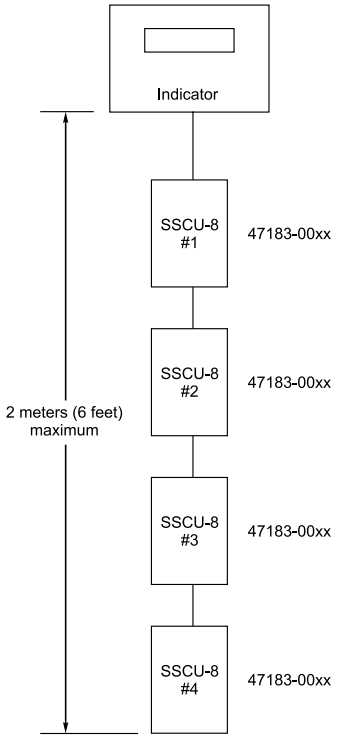
E





SSCU-8 Caution!

The Solid State Control Unit 8 (SSCU-8) option boards require that the total cable length from the indicator to the last SSCU-8 box/card be two meters (approx. six feet) maximum. Noise problems and intermittent communications with the SSCU-8 card will occur if this guideline is not followed.



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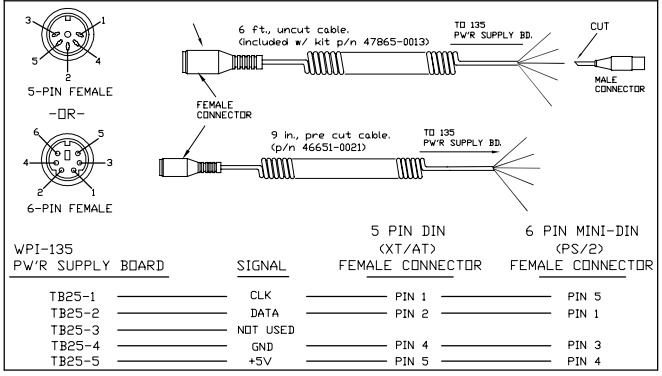
PC KEYBOARD-TO WPI-135 CONNECTION

1. Remove the back panel from the WPI-135 enclosure.
2. Insert the cut end of cable through water-tight connector at bottom of enclosure and pull cable into enclosure.
3. Strip covering back from cable to reveal five seperate wires.
4. ✳ Connect wires at PC keyboard port (TB25) as shown in pin-out chart (see below).

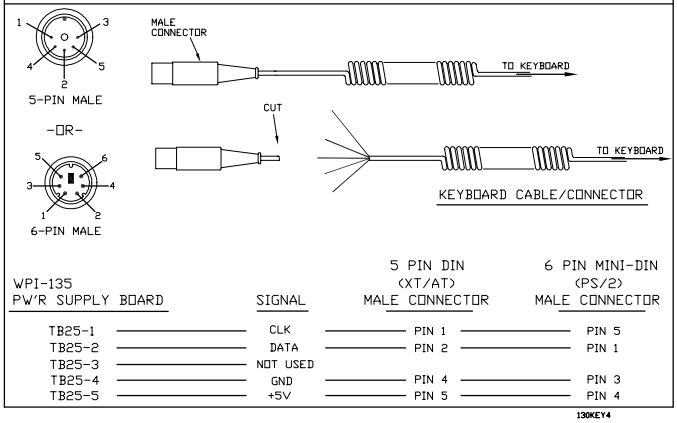
✳ Wire color may vary due to ongoing color changes from vendors. Use pin-out chart for pin I.D.

EXTENSION CABLE (9 in. pre cut) P/N 46651-0021
EXTENSION CABLE (6 ft. uncut kit) P/N 47865-0013

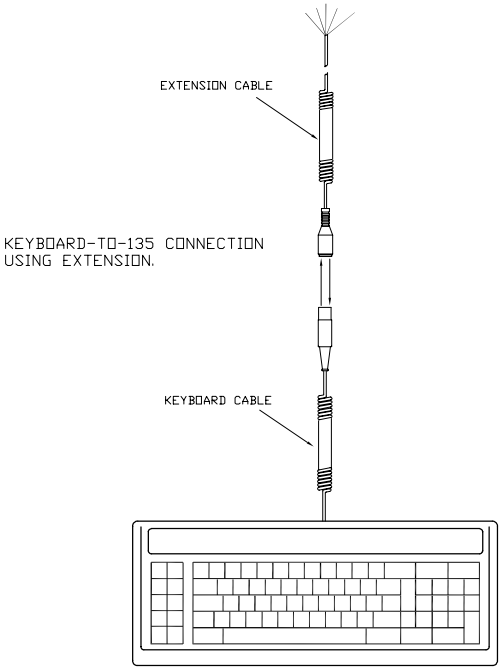


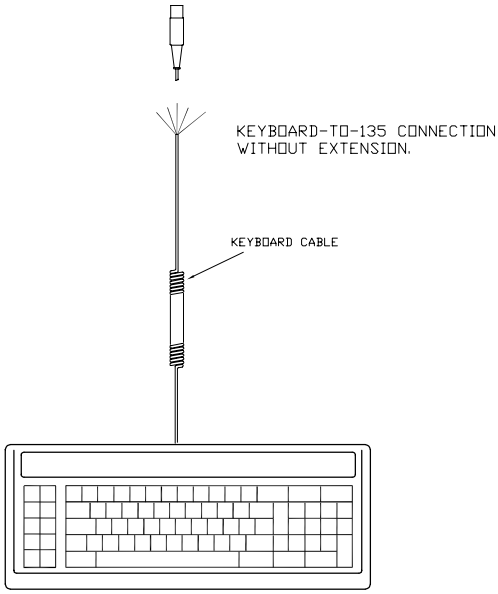
WPI-135 PW'R SUPPLY BOARD	SIGNAL	5 PIN DIN (XT/AT) FEMALE CONNECTOR	6 PIN MINI-DIN (PS/2) FEMALE CONNECTOR
TB25-1	CLK	PIN 1	PIN 5
TB25-2	DATA	PIN 2	PIN 1
TB25-3	NOT USED		
TB25-4	GND	PIN 4	PIN 3
TB25-5	+5V	PIN 5	PIN 4

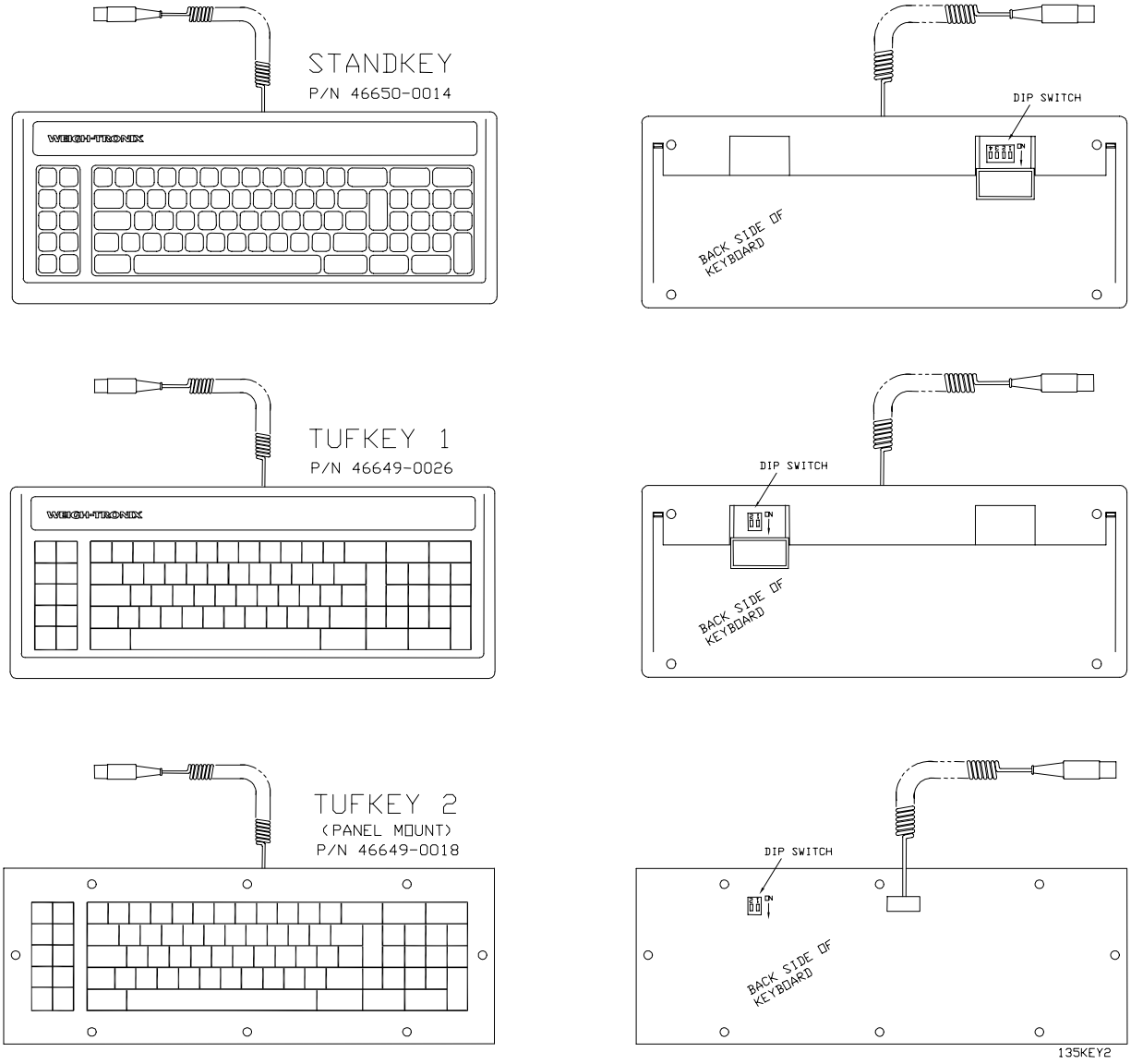
KEYBOARD CABLE PIN-OUT CHART



WPI-135 PW'R SUPPLY BOARD	SIGNAL	5 PIN DIN (XT/AT) MALE CONNECTOR	6 PIN MINI-DIN (PS/2) MALE CONNECTOR
TB25-1	CLK	PIN 1	PIN 5
TB25-2	DATA	PIN 2	PIN 1
TB25-3	NOT USED		
TB25-4	GND	PIN 4	PIN 3
TB25-5	+5V	PIN 5	PIN 4







KEYBOARD SPECIFICATIONS

ENVIRONMENTAL: 32°f to 130°f (0°c to 55°c).
COMMUNICATION OUTPUT: 1 start bit , 8 data bits , 1 stop bit, , selectable baud rates, TTL Asynchronous Serial.
WEIGHT: 2 lb/.9 kg nominal .

BAUD RATE	STANDKEY SWITCH SETTINGS			
	1	2	3	4
300	ON	OFF	ON	OFF
1200	OFF	OFF	ON	OFF
9600	ON	OFF	OFF	OFF

BAUD RATE	TUFKEY SWITCH SETTINGS	
	1	2
300	ON	ON
1200	ON	OFF
9600	OFF	ON

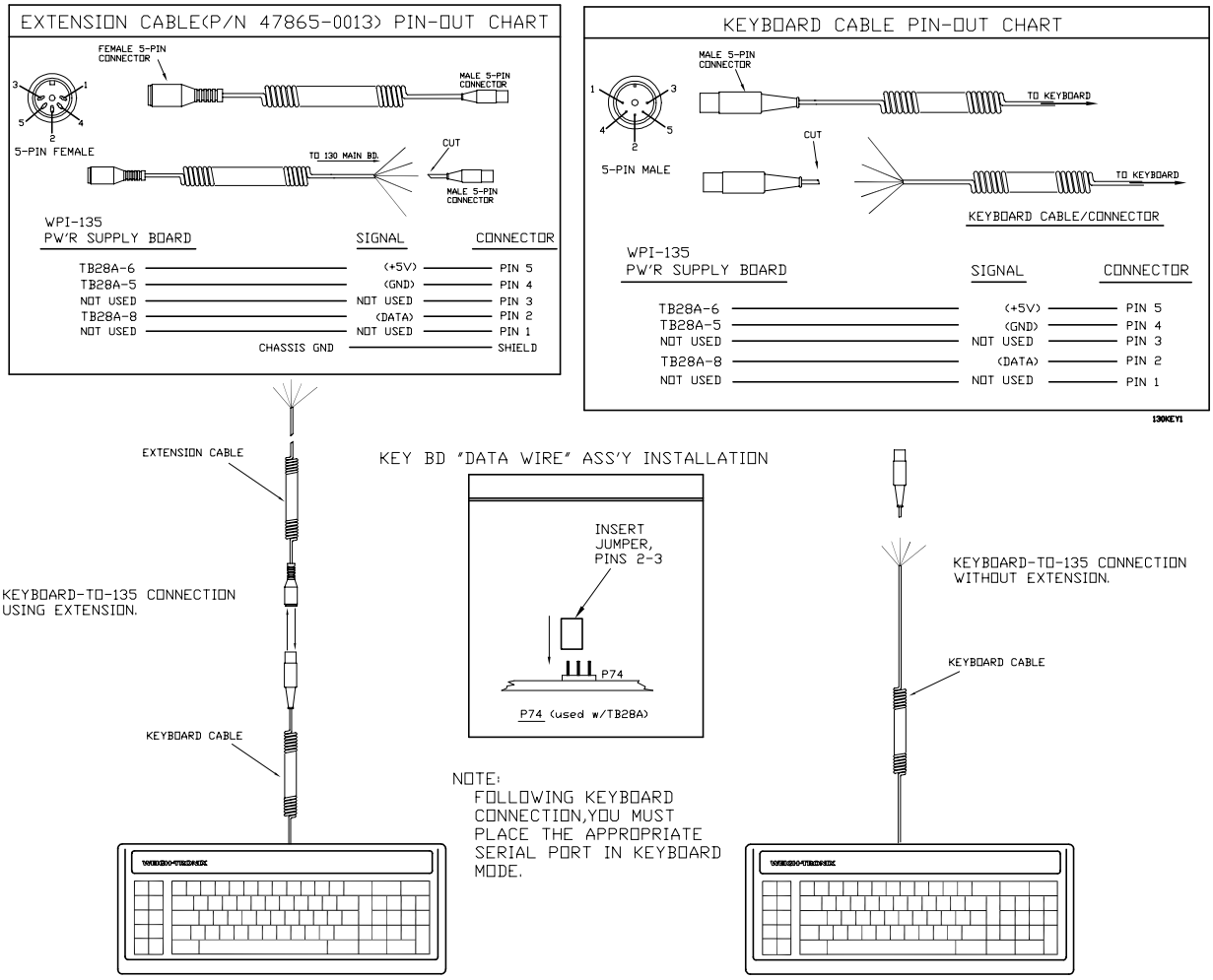
TTL KEYBOARD-TO WPI-135 CONNECTION

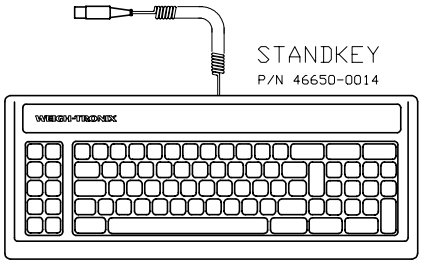
1. Remove the back panel from the WPI-135 enclosure.
2. Insert the cut end of cable through water-tight connector at bottom of enclosure and pull cable into enclosure.
3. Strip covering back from cable to reveal five seperate wires.
4. Install jumper on pins 2-3 of P74.

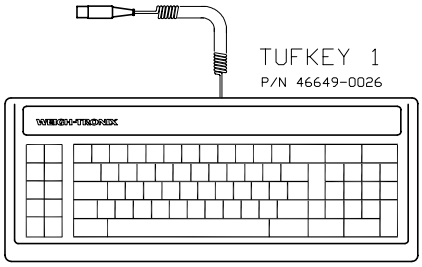
NOTE: A port set in keyboard mode can still output to a printer or remote display. However, a designated keyboard port cannot accept input other than the keyboard.

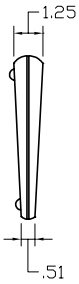
✳ 5. Connect wires at port 3 (TB28A) as shown in pin-out chart (see below).

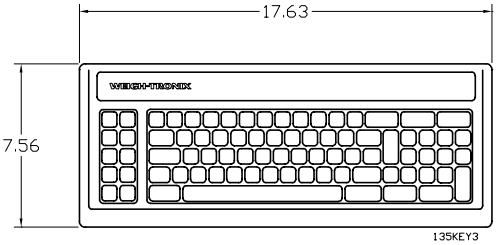
✳ Wire color not shown due to ongoing color changes from our vendor. Use pin-out chart for pin I.D.



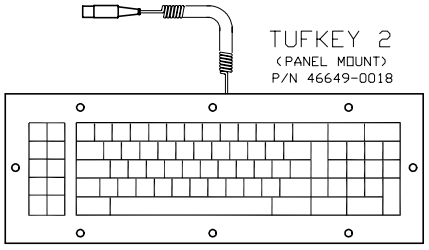


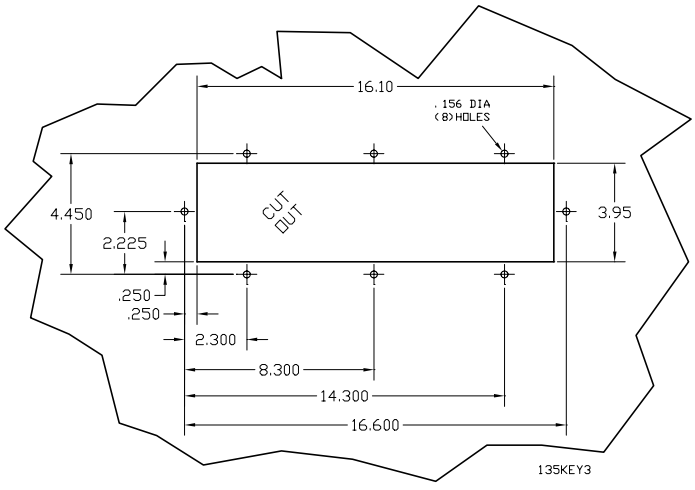




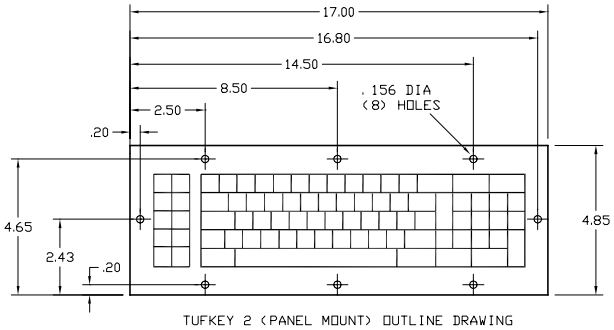


STANDKEY/TUFKEY 1 OUTLINE DRAWING

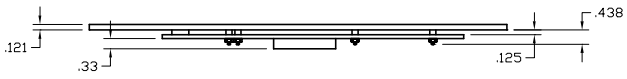


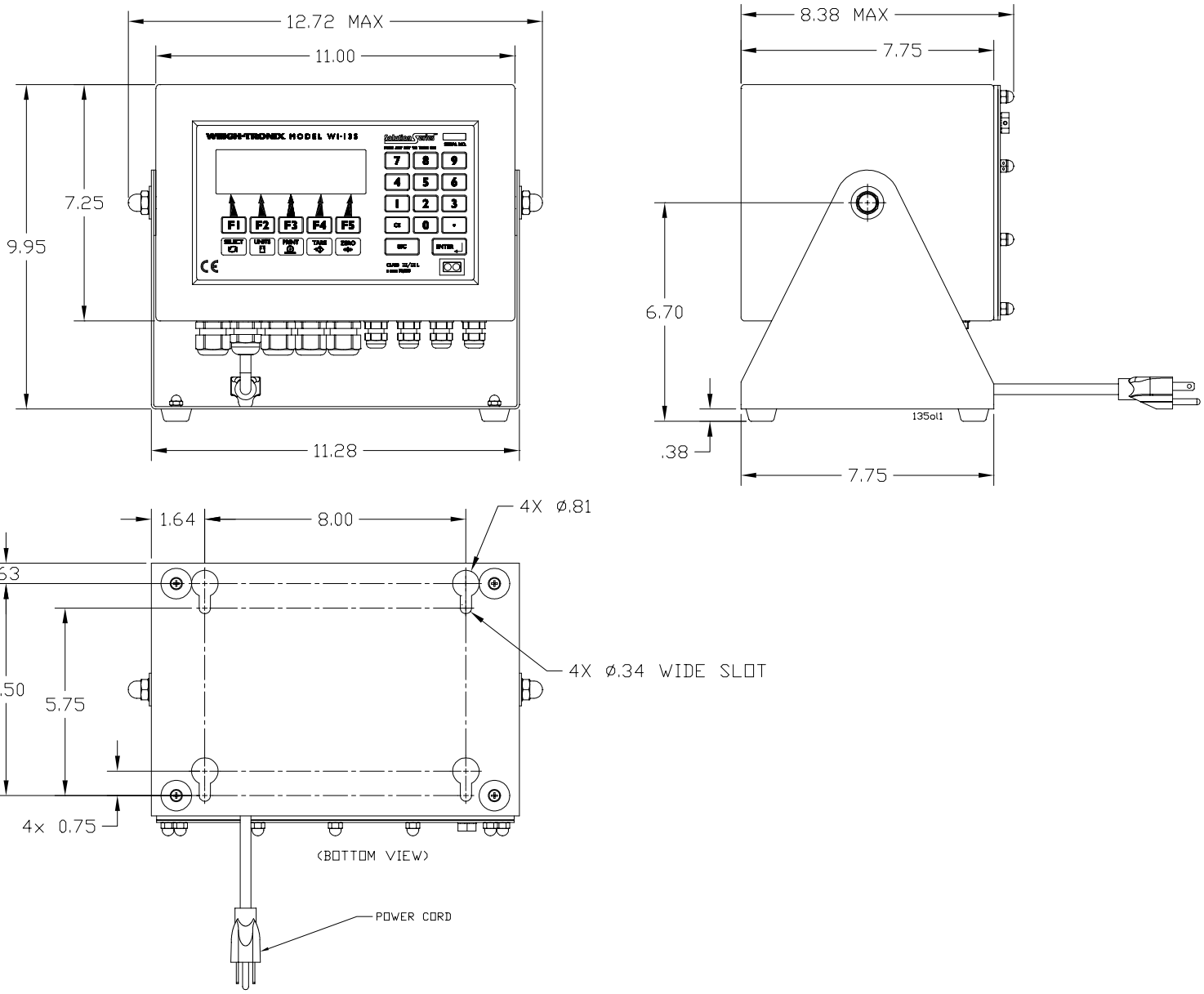


RECOMMENDED PANEL MOUNT KEYPAD DETAIL (TUFKEY 2)



TUFKEY 2 (PANEL MOUNT) OUTLINE DRAWING




12.72 MAX
11.00
7.25
9.95
11.28
WEIGH-TRONIX MODEL WI-135
F1
F2
F3
F4
F5
8.38 MAX
7.75
6.70
.38
135ol1
7.75
1.64
8.00
4X Ø.81
.63
6.50
5.75
4X Ø.34 WIDE SLOT
4x 0.75
(BOTTOM VIEW)
POWER CORD

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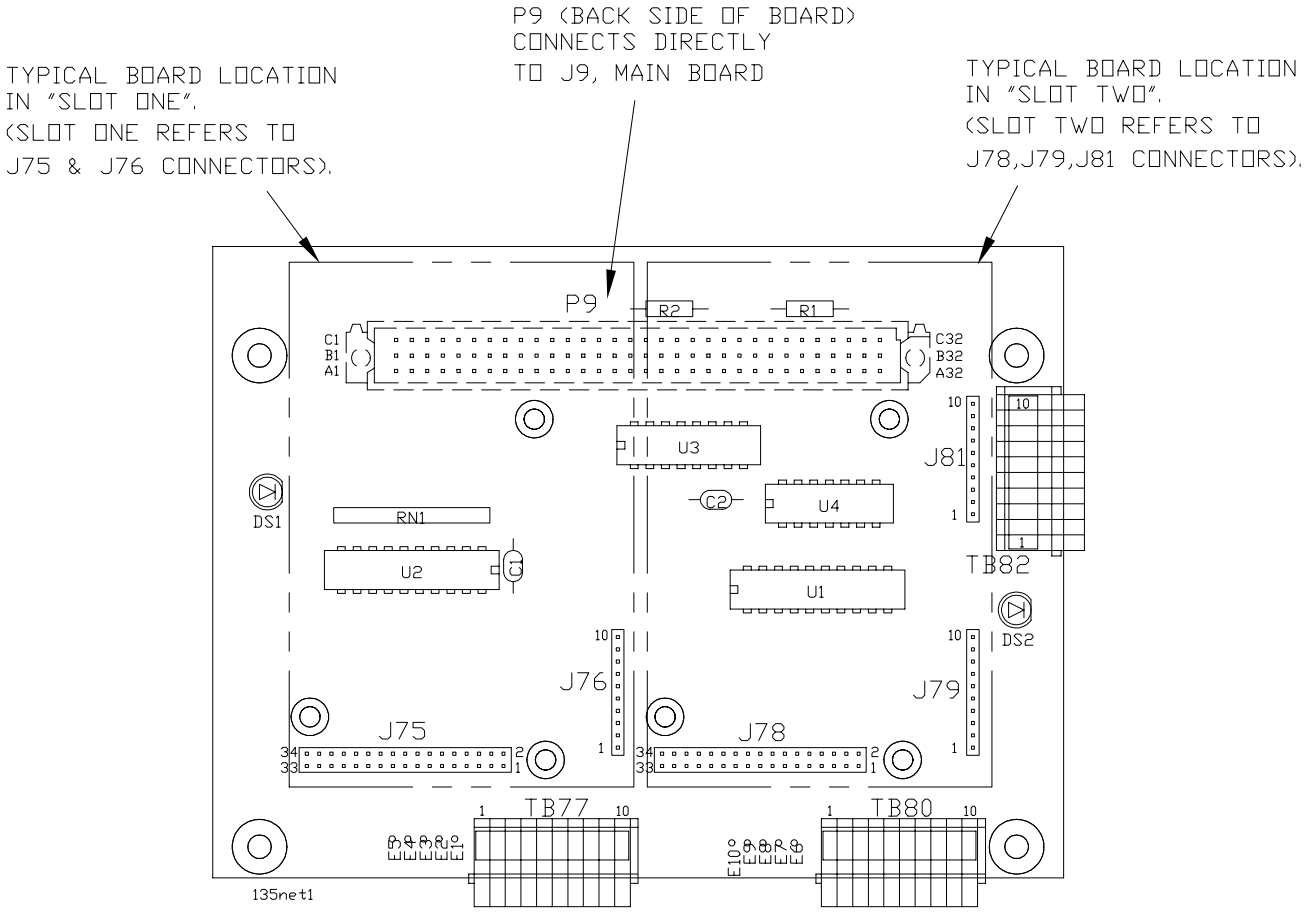
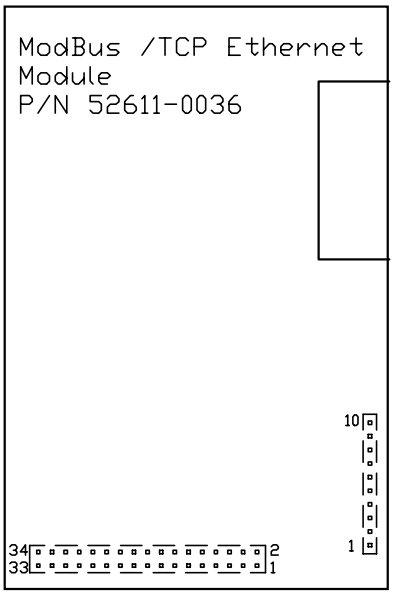
WPI-135 INDICATOR NETWORK INTERFACE BOARD *(OPTIONAL)*
P/N 53021-0012



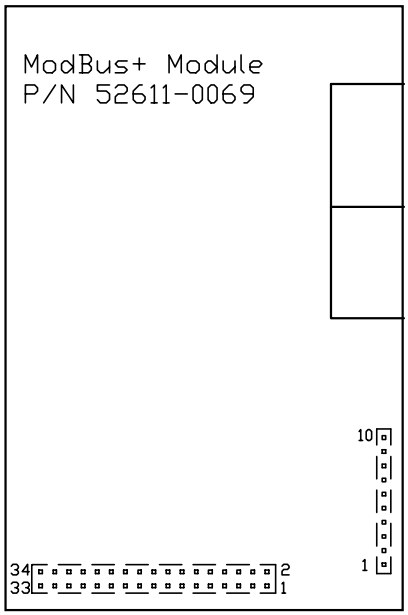
Note:
For more information about configuring and using the Network Interface Option boards, refer to the WPI-135 Network Installation Guide, P/N 29762-0015.

ModBus /TCP Ethernet NETWORK INTERFACE MODULE PC BOARD *(OPTIONAL)*



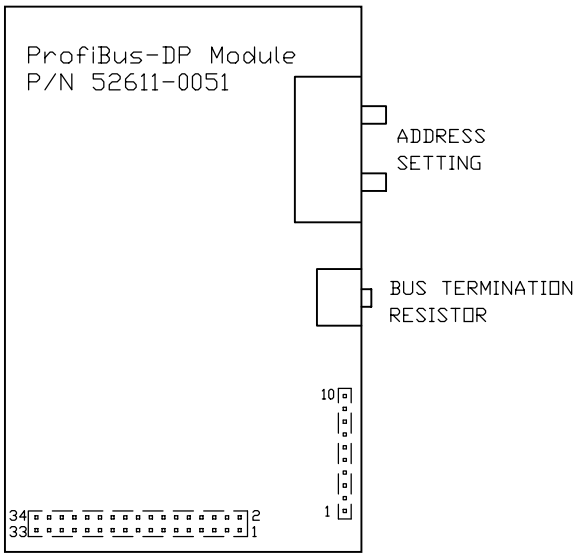
MODBUS/TCP ETHERNET					
TB77 TB80 PIN NO.	SIGNAL	RJ 45		DB-9 FEMALE	
		PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	GND	----	----	----	----
2	NC	----	----	----	----
3	NC	----	----	----	----
4	NC	----	----	----	----
5	TD+	1	TD+	8	TD+
6	TD-	2	TD-	3	TD-
7	RD+	3	RD+	7	RD+
8	NC	----	----	----	----
9	RD-	6	RD-	2	RD-
10	NC	----	----	----	----

ModBus+ NETWORK INTERFACE MODULE PC BOARD *(OPTIONAL)*



MODBUS+			
TB77 TB80 PIN NO.	SIGNAL	DB-9 FEMALE	
		PIN NO.	SIGNAL
1	PE		HOUSING
2	NC		
3	NC		
4	NC		
5	NC		
6	LINE A	3	LINE A
7	NC		
8	NC		
9	LINE B	2	LINE B
10	SHIELD	1	SHIELD

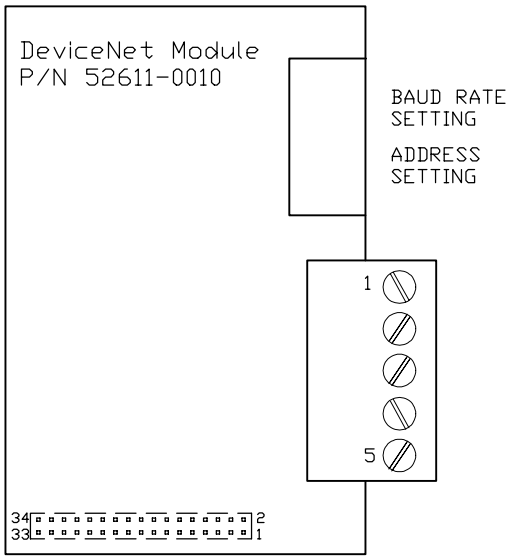
ProfiBus-DP NETWORK INTERFACE MODULE PC BOARD *(optional)*



PROFIBUS-DP			
TB77 TB80		DB-9 FEMALE	
PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	SHIELD		HOUSING
2	GND*	5	GND*
3	RTS*	4	RTS*
4	NC		
5	A-LINE TX/RX	8	A-LINE
6	B-LINE RX/TX	3	B-LINE
7	N/C		
8	+5V BUS*	6	+5V BUS*
9	NC		
10	NC		

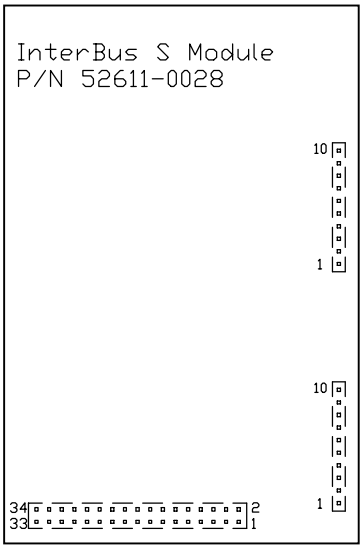
* +5V AND GND ARE USED FOR BUS TERMINATION AND OPTICAL TRANCEIVERS. RTS IS USED BY SOME EQUIPMENT TO DETERMINE THE DIRECTION OF THE TRANSMISSION.

DeviceNet NETWORK INTERFACE MODULE PC BOARD *(OPTIONAL)*



DEVICE NET	
(PLUGGABLE CONNECTOR)	
PIN NO.	SIGNAL
1	V- (BUS POWER GND)
2	CAN_LOW
3	SHIELD
4	CAN_HI
5	V+ (+24VDC)*

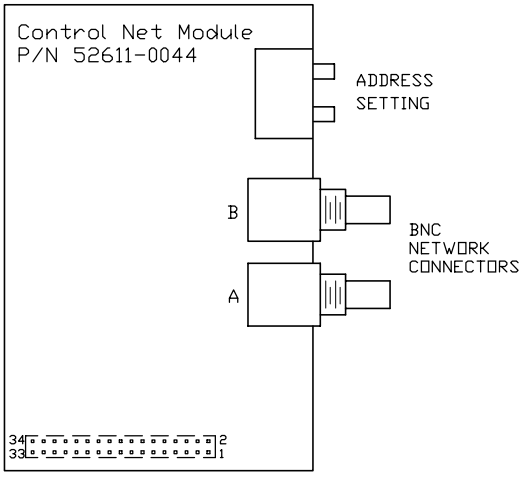
* AN EXTENDED POWER SUPPLY WILL BE USED TO SUPPLY V+ POWER. TYPICALLY THIS SUPPLY WILL BE PREVIOUSLY INSTALLED.



INTERBUS S			
TB82 (BUS OUT)		DB-9 MALE	
PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	PE		HOUSING
2	GND		
3	NC		
4	RBST	9	RBST
5	NC		
6	GND	3, 5	GND
7	/DI2	7	/DI2
8	/DO2	6	/DO2
9	DI2	2	DI2
10	DO2	1	DO2

INTERBUS S			
TB80 (BUS IN)		DB-9 FEMALE	
PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	PE		HOUSING
2	DO1	1	DO1
3	DI1	2	DI1
4	/DO1	6	/DO1
5	/DI1	7	/DI1
6	GND	3	GND
7	NC		
8	NC		
9	NC		
10	NC		

Control Net **NETWORK INTERFACE MODULE**
PC BOARD *(OPTIONAL)*



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