Avery Weigh-Tronix

WI-130 WDAC
Service Manual

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Specifications

Power Input	115 Volts AC, 500 mA 50/60 Hz single phase 230 Volts AC, 250 mA, 50/60 Hz single phase *Optional 10-32 volts DC and AC noted above*
Excitation	10 Volts DC or 10 volts AC square wave capable of driving up to twenty 350-ohm weight sensors or 1 Quartzell™ transducer
Operational Keys	Zero, Tare, Print, Units, Select, Enter, Escape, Clear, 0-9, Decimal Point and Five Soft Keys labeled per selected operational routine. All keys provide users with tactile and audio acknowledgment when they are activated.
Operational Annunciators	Displayed symbols indicate motion, center of zero, unit of measure and more.
Display	1" H x 4.3" W vacuum fluorescent dot graphic display (32 X 128 dot layout)
Display rate	Selectable, 0.1 to maximum readable updates
A to D Conversion Rate	60 times per second
Unit of Measure	Pounds, kilograms, grams, ounces, pounds and ounces and two selectable 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:	Four communications choices: Com 1: RS232, RS-485/422 Com 2: RS232, 20 mA current loop (*One bi-directional signal per port*) Two set point I/O ports via OPTO 22 I/O modules
Available Options	- Multi scale inputs - DC operation at 10 to 32 VDC, 3.5 Amp - OPTO 22 I/O Modules - Remote Expanded Control Interface for 8, 16, 24, or 32 OPTO 22 I/O Modules - Alpha-numeric, PC style keyboard - Quartzell transducer interface - Analog interface
Operating Temperatures	14 to 104° F (-10 to 40° C), 10 to 90% relative humidity
Enclosure	Stainless steel wash down enclosure
Dimensions	12 3/8" H x 10 3/4" W x 5 1/4" D (31.43 cm x 27.31 cm x 13.34 cm)
Weight	17.5 lb, 7.8 kg
Agencies	NIST Class III/IIIL Certified COC# 95-008 Canadian Weights and Measures AM-5054 UL (115 VAC) CUL (115 VAC) FCC Class A
Warranty	2 year

Introduction

About This Manual

This manual covers the information you need to configure and service your WI-130 **W**eight **D**ata **A**cquisition **C**ontroller (WDAC).

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

The front panel is shown in Figure 1.

Plug the WI-130 into an easily accessible grounded outlet only. Never use the unit without an appropriate earthground connection.

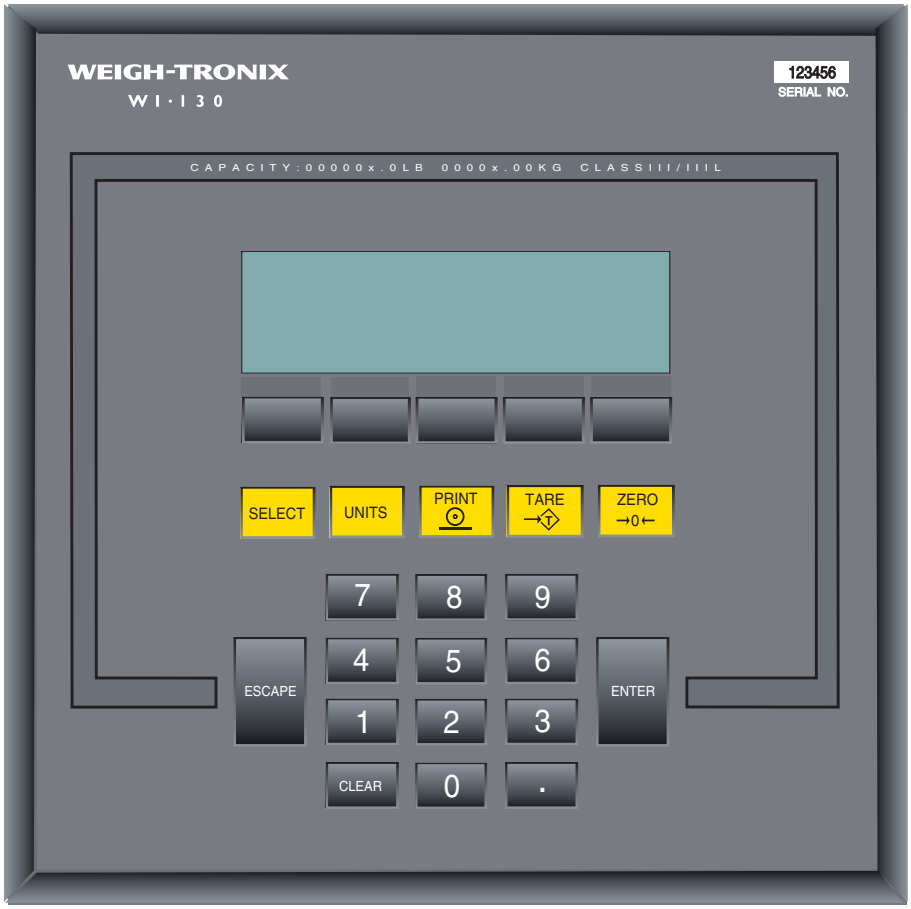


Figure 1
WI-130 Front Panel

Hard Keys

The keys on the front panel of the WI-130 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.

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

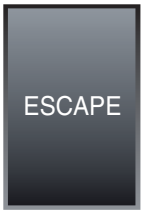
Repeatedly press the SELECT key to scroll through the available weight reading displays. (Examples - gross, net, tare, minimum, maximum, etc.)

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

Press the PRINT key to send data to a connected printer.

Press the TARE key to enter a tare weight, then press SELECT to see the net display mode.

Press the ZERO key to establish a zero reference. A center-of-zero icon will be displayed. During motion an M will appear below the center-of-zero icon.



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

Press the CLEAR to clear values from the display.

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 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 level of operation with five more key names and functions.

Wall Mounting Instructions

To mount the WI-130 to a wall, use 5/16" steel bolts through the four 11/32" wide key hole slots in the mounting bracket. See *WI-130 WDAC Enclosure w/stand* outline drawing in the back of this manual.

For mounting onto sheet metal use bolts, lock washers and nuts. The minimum recommended material thickness is 16 gauge (0.059") steel or 0.080" aluminum. For bolting into threaded hole in metal, a 1/4" minimum thread length is recommended.

For fastening to wood, use 5/16" diameter lag bolts with 3/4" minimum engagement into the wood.

Directly mounting to sheetrock or plaster without reinforcement is not recommended.

Accessing Setup

There are three levels of WI-130 setup you can access through the front panel:

User level

The first level is the **User** level. These are the most commonly changed values and parameters that you will use in the course of operating the WI-130.

Configuration level

The second level is the **Configuration** level. These items deal with some of the basic functions of the WI-130 and do not need to be accessed very often.

Calibration level

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

A different password is needed to access each level. Once you access the level 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 WI-130 to suit your needs.

You must key in the password within 5 seconds of accessing the password screen or the WI-130 returns to normal operation.

Following are the instructions you need to access the setup of the WI-130.

1. Press and hold the **ESCAPE** key until the WI-130 beeps. . . The display asks for a password and looks like Figure 2.

Figure 2
Password display

Below are the passwords and details for the three setup levels.

IMPORTANT NOTE
The WI-130 can be sealed for legal for trade use and the software protected from change by a hardware connection on the main board. If P19 is jumpered, the system is sealed and programs cannot be downloaded or altered. If P19 is not jumpered the system is not sealed and programs can be downloaded from the SimPoser software. A jumper on P19 does not affect the USER level. This level can be accessed and changed no matter what the condition of P19.

User level

The User level is not affected by the condition of P19 on the main board.

The default User password is 111.

Key in 111 and press **ENTER. . .** the screen in Figure 3 is displayed.

Figure 3
User level 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 values under SELECT in the flowchart to the right are not saved after a power down and power up.

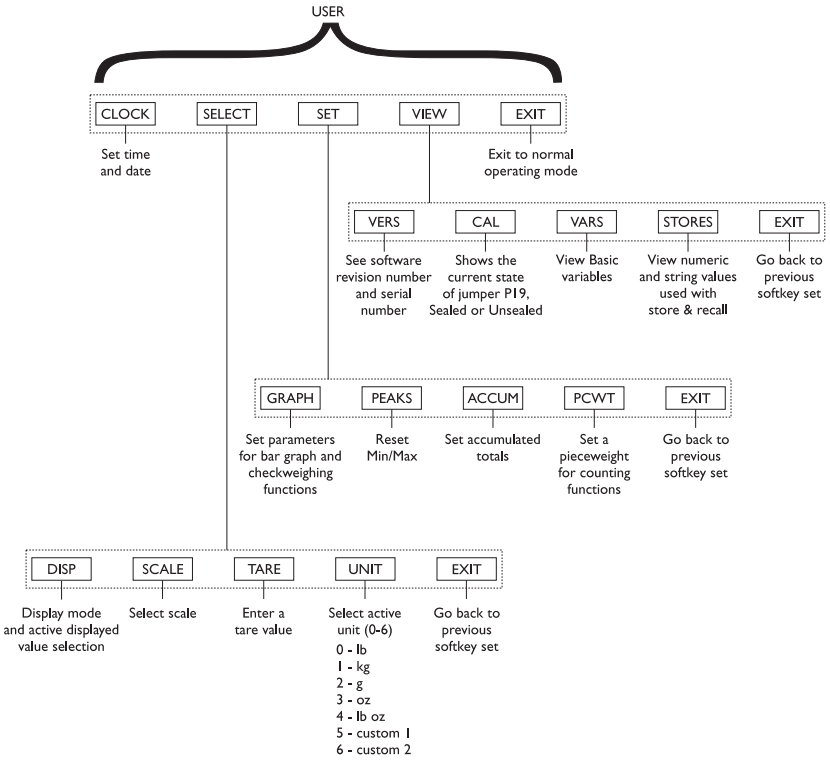


Figure 4
Soft key flowchart for User level

USER-CLOCK Level

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, day, and day of the week (0=Sunday, 1=Monday, etc.). . . — Display returns to display shown in Figure 3.

USER-SELECT Level

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

Press the **SELECT** soft key to access the USER-SELECT soft key group:

- **DISP** Press this key to set the current display mode.
- **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.
- **EXIT** Press this key to go back to the previous soft key set.

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

DISP (Display Mode)

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.

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.

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

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	

SCALE

You cannot select a scale number unless it has been activated in the SimPoser program and downloaded to the WI-130.

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.

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.

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

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

USER-SET Level

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 checkweighing 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.

GRAPH

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 one, 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.

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

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	

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 level display.

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.

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 level soft key group.

USER-VIEW Level

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

- **VERS** Press this key to see WI-130 firmware revision date and time. Serial number is currently not used. Configuration information is displayed if a program has been downloaded from SimPoser software.
- **CAL** Press this key to view the state of jumper P19(Sealed/ Unsealed).
- **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.
- **EXIT** Press this key to go back to the previous soft key set.

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

VERS

If you press the **VERS** soft key you will see the firmware version number. Serial number is currently not used. When you press any key, if you have never downloaded a file from SimPoser, you will see only the word CONFIGURATION and no other information. If you have downloaded a file, the following information is displayed:

License # of the SimPoser software.
Name of license holder.
Version number of the SimPoser software.
Name of the downloaded file (application program).
Time and date of the last download.

Press any key again and the USER-VIEW level is displayed.

CAL

Press the **CAL** soft key to see the current state of jumper P19. The display will show ***Sealed*** or ***Unsealed***.

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 level.

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

STORES

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:

There are three types of memory:
• Standard
• Expanded
• Memory Card

Standard memory has locations 0-1023 for numeric storage and 0-511 for string storage.

Expanded memory has locations 1024-8191 for numeric storage and 512-4095 for string storage.

The memory card has locations 8192-73727 for numeric storage and 4096-36863 for string storage.

If you do not have the memory installed, the location returns a zero.

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 one the following screen is displayed.

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 level.

Press **EXIT** to return to the USER level. Press EXIT one more time and you are back to normal operation. You have now seen all the parts of the USER level. The next section of the manual covers front panel configuration.

Configure level

You must key in the password within 5 seconds of accessing the password screen or the WI-130 returns to normal operation.

When your changes are completed, secure and protect them by placing a jumper on P19!

The deafult password for the Configure level is 2045.

1. Press and hold the **ESCAPE** key for 3-5 seconds. You will hear a 2nd beep and the display will change. Key in 2045 and press **ENTER. . .** the screen in Figure 5 is displayed.

Figure 5
Configuration level display

Under Misc. (print format) in the flowchart to the right, the default print format 0 shows gross, tare and net weights. If you choose another print format (1-16) you need to define the format in SimPoser and download it to the WI-130.

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

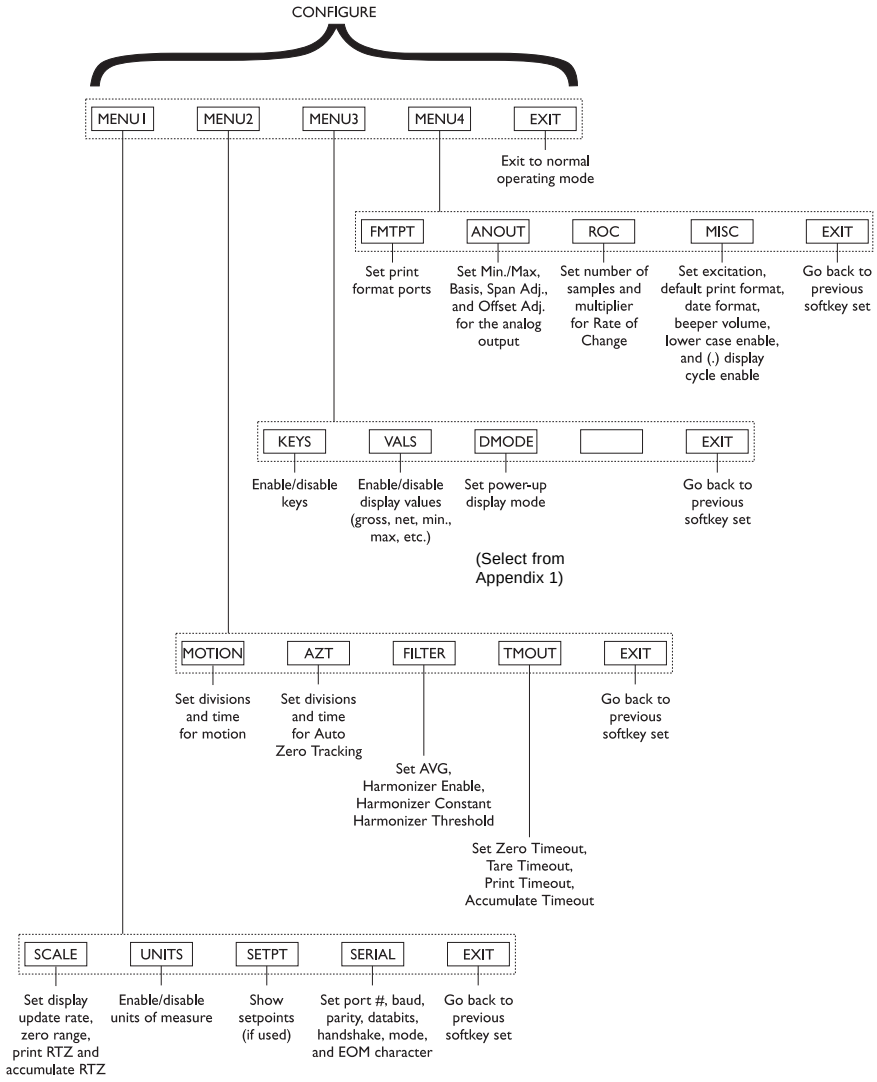


Figure 6
Soft key flowchart for Configure level

CONFIGURE-MENU 1 Level

When your changes are completed, secure and protect them by placing a jumper on P19!

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

- **SCALE** Press this key to set display update rate, zero range, print return to zero, and accumulate return to zero.
- **UNITS** Use this key to enable/disable units of measure.
- **SETPT** Use this key to show setpoints, if used.
- **SERIAL** Use this key to set port #, baud rate, parity, databits, handshake, mode, and EOM character.
- **EXIT** Press this key to go back to the previous soft key set.

Following are detailed instructions for setting these parameters.

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

SCALE

Any value for display update rate greater than 2 will be considered as the maximum update rate or 99.

99 is five times per second.

1. The display will show the *current display rate* (.1, .25, .5, 1, 2, 99) times per second. Accept this by pressing the **ENTER** key or key in a new value and press the **ENTER** key. . .

   The display shows the zero range value. If a non-valid number is keyed in the value will default to 99, which is 5 times per second.

2. Repeat step one for *zero range* (0-100% allowed). Press **ENTER** to accept this or key in a new value and press **ENTER** . .

   This is the percentage of capacity that you are allowed to zero using the **ZERO** hard key.

By default, when the **PRINT** *key is pressed, a print operation and an accumulation take place. If you do not want the accumulation to occur, a WT-BASIC program assigning only the DO PRINT command to the* **PRINT** *key needs to be downloaded to the WI-130. A WT-BASIC program can also define an ACCUM. soft key and assign accumulation to that key only.*

3. Repeat step one for *print return to zero* (0-100% of cap. allowed). Press **ENTER** to accept this or key in a new value and press **ENTER** . .

   If you press the **PRINT** key, the weight must be above this percentage of scale capacity and stable before the operation will be allowed. To perform this operation again, the weight must first return to ZERO, be stable, then exceed this percentage of scale capacity, then another print operation will be allowed.

4. Repeat step one for *accumulate return to zero* (0-100% allowed). Press **ENTER** to accept this or key in a new value and press **ENTER** . . .

   If you perform an accumulation, the weight must be above this percentage of scale capacity and stable before the operation will be allowed. To perform this operation again the weight must first return to ZERO be stable, then exceed this percentage of scale capacity, then another print or accumulation operation will be allowed.

UNITS

Custom unit names must be defined by SimPoser software program.

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

The custom conversion factor is the number to be multipied by the weight (in calibration units) to get the desired custom unit. Example: 1 lb = 5 inches of a certain steel rod. Custom unit is inches. Calibration unit is lb. Conversion factor is 5. With six lbs of weight on the scale, 30 inches would be displayed.
(Six lbs x 5 = 30 inches of steel)

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 and 2. The display asks for the conversion factor for each custom unit. Key in a value and press **ENTER**. . .

The display returns to the CONFIGURE-MENU1 display.

SETPT

Setpoint operations must be defined by the SimPoser software program.

If you press the **SETPT** soft key the display asks you SHOW SETPOINTS? What this means is, if you say yes, the display will show when setpoints turn on and off by lighting small dots in the upper right corner. Press the **YES** soft key if you want to see these dots, and press **NO** if you do not.

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 code number is displayed.

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

The parity code number is displayed.

Baud Rate Codes

0 = 300	4 = 9600
1 = 1200	5 = 19,200
2 = 2400	6 = 38,400
3 = 4800	7 = 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

Setting this parameter to SET will simulate 2 stop bits and no parity detection.

This lets you choose parity as even, odd, clear (logic 0 or space), or set (logic 1 or mark).

	Data Bits	Stop Bits	Parity
Set (Mark)	7	2	none
Clear (Space)	8	1	none
Mark	7	2	none
Space	8	1	none
Odd	7	1 or 2	odd
Even	7	1 or 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.

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.

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.

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.

*Enquire Mode must be enabled and the EOM character **MUST** be set to 5 to operate with Truck Weigh Software program.*

Serial Mode Control Codes

0 = BASIC control 2 = Disabled
1 = Keyboard 3 = Multidrop
6 = Enquire

BASIC Control - Control of the serial port is through the BASIC program executing in the WI-130.
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.

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.

EOM ASCII code #13 is carriage return.

This completes the instructions for all the parameters of Menu 1.

CONFIGURE-MENU 2 Level

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.

  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.

- **AZT** Use this key to enable AZT. If you enable AZT you can set the division size and 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.

- **FILTER** Use this key to set up the Harmonizer filtering. 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 WI-130. 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.

  The purpose of the Harmonizer Threshold is so the indicator will respond quickly to large weight changes. Harmonizer Threshold is the amount of weight swings, in calibration units, beyond which the Harmonizer will be temporarily disabled. For example, if you set this to 10 lbs, a weight swing over 10 pounds occuring during the sample time (30 A-D conversions in our example) will disable the Harmonizer until the weight swing during the sample time drops below 10 lbs.

In the SimPoser software the Harmonizer constant choices are 0 through 10. This setting is to be made in the "real world" on a working system so there are more levels available from the front panel.

- **TMOUT** Use this key to set Zero Timeout, Tare Timeout, Print Timeout and Accumulate Timeout. This is the amount of time the WI-130 will wait for motion to cease and perform the function after the key is pressed.

  For example, if Zero Timeout is set to 3 seconds, when the **ZERO** key is pressed the unit will zero the scale if there is no motion. If there is motion and motion ceases within 3 seconds the unit will zero the scale. If motion doesn't cease the key press is ignored.

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

Following are detailed instructions for setting these parameters.

MOT'N (motion)

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 CONFIGURE-MENU2 display.

AZT (auto zero tracking)

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 CONFIGURE-MENU2 display.

FILTER

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).

When your changes are completed, secure and protect them by placing a jumper on P19!

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 CONFIGURE-MENU2 display.

TMOUT (timeout)

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

1. The current value for Accumulate Timeout is displayed. Press **ENTER** to accept this value or key in a new value and press **ENTER**.

2. Repeat step 1 for Print Timeout, Zero Timeout, and Tare Timeout. . . The display returns to the CONFIGURE-MENU2 display.

Press the **EXIT** soft key to return to the CONFIGURE display.

CONFIGURE- MENU 3 Level

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

- **KEYS** Press this key to enable or disable front panel keys.
- **VALS** Press this key to enable or disable the display values (gross, net, min., max., ect.)
- **DMODE** Press this key to pick a power-up display mode from the over 35 available. See *Appendix 1: Display Samples*.
- **EXIT** Press this key to go back to the previous soft key set.

Following are detailed instructions for setting these parameters.

KEYS

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

1. The current setting (enabled ON or OFF) for the **SELECT** hard key is displayed. Press **YES** to enable the key or **NO** to disable the key, then press **ENTER** . . The current setting for the **UNITS** hard key is displayed.

2. Repeat step 1 for **UNITS**, **PRINT**, **TARE**, **ZERO**, **AUTOTARE**, and **KEYPAD TARE**. . . — The display returns to the CONFIGURE-MENU3 display.

VALS

If you press the **VALS** soft key, follow these instructions.

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, VARIABLE, PCWT, and ADC. . . — The display returns to the CONFIGURE-MENU3 display.

DMODE

If you press the **DMODE** soft key, press **ENTER** to accept the display mode number shown or key in a new number (see *Appendix 1*) and press ENTER.

The display returns to the CONFIGURE-MENU3 display. Press the **EXIT** key to return to the CONFIGURE display.

CONFIGURE-MENU 4 Level

Press the **MENU4** soft key to access the CONFIGURE-MENU 4 soft key set:

- **FMTPT** Press this key and enter the serial port # you want each of 16 print formats to be printed through.

- **ANOUT** Press this key to select the Minimum, Maximum and Basis parameters used with the optional Analog Output card.

  Minimum Value
  The Minimum Value is the lowest value that will be represented by the Analog Output.

  Maximum Value
  The Maximum Value is the highest value that will be represented by the Analog Output.

  Selection Basis
  Selection basis is the active display value upon which the output of the analog output will be based.

  Span Adjust
  Allows you to adjust the highest value of the analog output.

  Offset Adjust
  Allows you to adjust the lowest value of the analog output.

When your changes are completed, secure and protect them by placing a jumper on P19!

- **ROC** ROC stands for Rate of Change. Press this key to set up your WI-130 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 WI-130 converts weight from A to D at 60 times per second. If ROC Samples is set to 60, the WI-130 is determining the rate of weight change over one full second.

  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.

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

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.)

- **MISC** Press this key to set excitation, default print format, date order, beeper volume, lower case enable (for pre-formatted text only), and decimal (.) display cycle enable.
- **EXIT** Press this key to go back to the previous soft key set.

Following are detailed instructions for setting these parameters.

FMTPT

The default print format 0 shows gross, tare and net weights. If you choose another print format (1-16) you need to define the format in SimPoser and download it to the WI-130.

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

1. The current serial port number assigned to Format 1 is displayed. Press **ENTER** to accept this serial port or key in a new serial port number and press **ENTER**. . . — The serial port assignment for Format 2 is displayed.
2. Repeat step 1 for up to 16 print formats and press the **ENTER** key. . . — The display returns to the CONFIGURE-MENU4 display.

ANOUT (analog output)

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

1. The display shows the current value used to represent the MIN (minimum) output from the analog output card . Press **ENTER** to accept the current value or key in a new value and press **ENTER**. . .

   The display shows the current MAX value.

Example:
4mA-20mA output
Minimum value = 0 lbs gross weight = 4mA output.
Max value = 1000 lbs gross weight = 20mA output.

Basis is set to 0, which is gross weight.

Adjustments to the actual output of the analog output pcboard are only allowed through the front panel of controls of the WI-130 and are dependent on the actual weight on the scale. Therefore, in the example above, a 1000 lb weight must be placed on the scale to allow adjustment of maximum value.

Offset Adjust and Span Adjust may have values between ±5000 counts.

2. Press **ENTER** to accept the current MAX value or key in a new value and press **ENTER**. . .

   The display shows the current selection upon which the output is based.

3. Press **ENTER** to accept the current basis or key in a new value from the table below and press **ENTER**. . .

   The display shows the highest adjustment value.

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

4. Press **ENTER** to accept the current highest adjustment value or key in a new value (-5000 to +5000) and press **ENTER**. . .

   The display shows the current lowest offset adjustment value.

5. Press **ENTER** to accept the lowest current offset adjustment value or key in a new value (-5000 to +5000) and press **ENTER**. . .

   The display returns to the CONFIGURE-MENU4 display.

ROC

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 CONFIGURE-MENU4 display.

MISC

If you press the **MISC** soft key, follow these instructions.

1. The display shows current setting for the AC excitation. Press ENTER to accept the current setting or key in a new setting from the table below and press **ENTER**. . .

   The display shows the default print format.

   AC Excitation

   0 = DC 2 = 600 Hz
   1 = 300 Hz 3 = 1200 Hz

The default print format 0 shows gross, tare and net weights. If you choose another print format (1-16) you need to define the format in SimPoser and download it to the WI-130.

2. Press **ENTER** to accept the current print format as the default for the **PRINT** key or key in a new format (0-16) and press **ENTER**. . .

   The display shows the date preference format.

3. Press **ENTER** to accept the date format or key in a new one from table below and press **ENTER**. . .

   The display shows the beeper volume setting.

   Date Preference Format

   0 = MMDDYY 1 = DDMMYY

When your changes are completed, secure and protect them by placing a jumper on P19!

4. Press **ENTER** to accept the current volume level or key in a new level (see table below) and press **ENTER**. . .

   The display shows the current type style selection for screen text.

   Beeper Volume

   0 = OFF 2 = Medium
   1 = Low 3 = High

5. Press **ENTER** to accept the current type style selection or key in a new style from the table below and press **ENTER**. . .

   The decimal display cycle is shown.

   Type Style

   0 = no lowercase 1 = lowercase

6. Press **ENTER** to accept the current decimal display cycle setting or key in a new value from the table below and press **ENTER**. . .

   The display returns to the CONFIGURE-MENU4 display.

   Decimal Display Mode

   0 = OFF 1 = ON

If the decimal display is ON you can scroll through all the display modes (see Appendix 1) by pressing the decimal (.) hard key on the indicator. Only the text supplied by your BASIC application program will be displayed.

Press **EXIT** twice to return to normal operation. If you changed the configuration you will be asked if you want to save changes. Press **YES** if you do. **NO**, if not.

Calibrate level

You must key in the password within 5 seconds of accessing the password screen or the WI-130 returns to normal operation.

The default password for the Calibrate level is 30456.

1. Press and hold the **ESCAPE** key for 3-5 seconds. You will hear a 2nd beep and the display will change. Key in 30456 and press **ENTER. . .** the screen in Figure 7 is displayed.

Figure 7
Calibrate level display

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

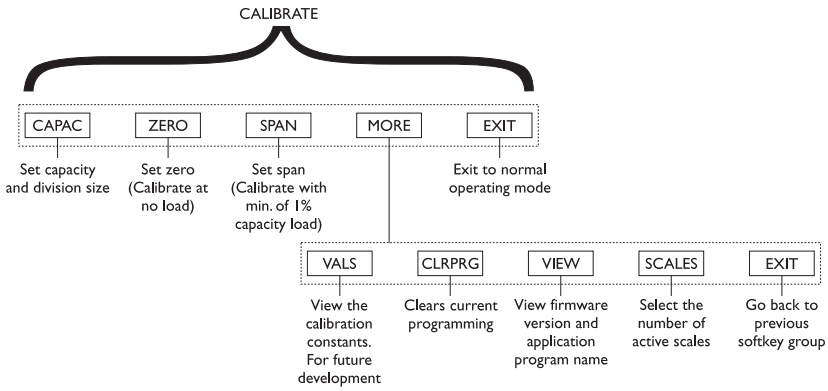


Figure 8
Soft key flowchart for Calibrate level

Press the **CAPAC** soft key to set the capacity and division size of the scale.

Press the **ZERO** soft key to set the zero reference (calibrate at no load).

Press the **SPAN** soft key to set the span (calibrate with load).

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

- **VALS** Press this key to see the calibration constants. These numbers are for future development.
- **CLRPRG** Press this key to clear the BASIC program and the configuration of your WI-130. **DO THIS ONLY WHEN ABSOLUTELY NECESSARY**.
- **VIEW** Press this key to view the firmware version.
- **SCALES** Press this key to select the number of active scales.
- **EXIT** Press this key to go back to the previous soft key group.

Following are detailed instructions for setting or viewing the above parameters.

*In Legal for Trade applications the number of Active Scales **must** reflect the number of physical scales to be calibrated at the time the WI-130 is sealed.*

CAPAC (capacity)

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 CALIBRATE display.

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 then returns to the CALIBRATE display.

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.

You may use as little as 1% of full capacity to span the system but Weigh-Tronix recommends using as close to 100% of full capacity as possible.

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.

Earlier versions of firmware may require you to disable the filtering and set the a/d sample value to 12 in order to span the system correctly. Remember to record all filter settings so you can restore them after you are done spanning the system.

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

The soft key group and functions accessed by the **MORE** soft key are explained on the previous page.

As you try to exit the calibration section the display will ask if you want any changes saved. Press the **YES** key if you want changes saved, **NO** if you do not.

This concludes the calibration section of the manual.

Disassembly

Follow the instructions in this section to disassamble the WI-130.

1. Unplug the WI-130 from the power source.
2. Remove the back of the WI-130 by removing the fourteen acorn nuts and pulling the back cover from the case. See Figure 10.

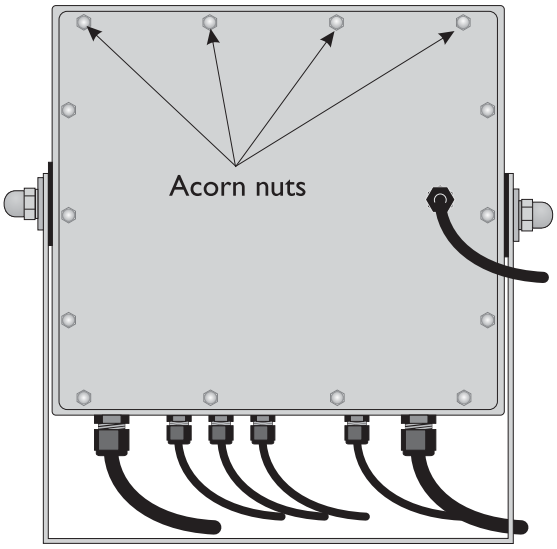


Figure 10
Back view of the WI-30

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 four screws in the corners of the transformer and the two holding the pc board as shown in Figure 11.

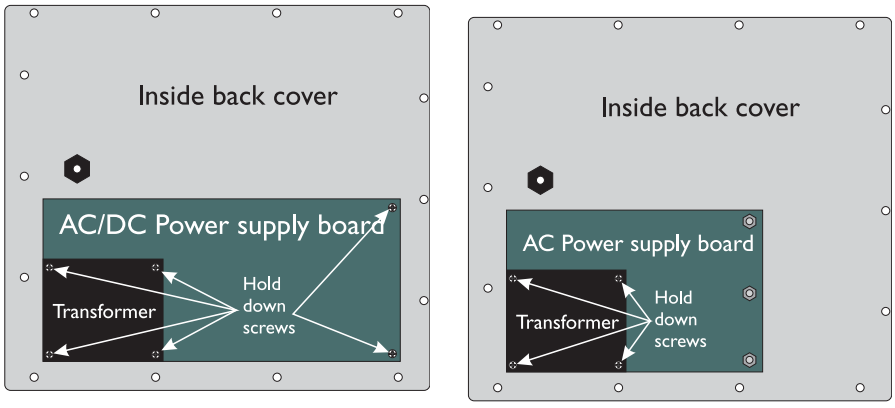


Figure 11
Power supply board

4. If you need to remove the main board, disconnect the two ribbon cables from the main board. Remove the six hold down screws on the pc board, as shown in Figure 12 and pull out the main board. Take care

because there is a hidden cable connecting the main board to the display board. Disconnect this before pulling the main board all the way out of the unit.

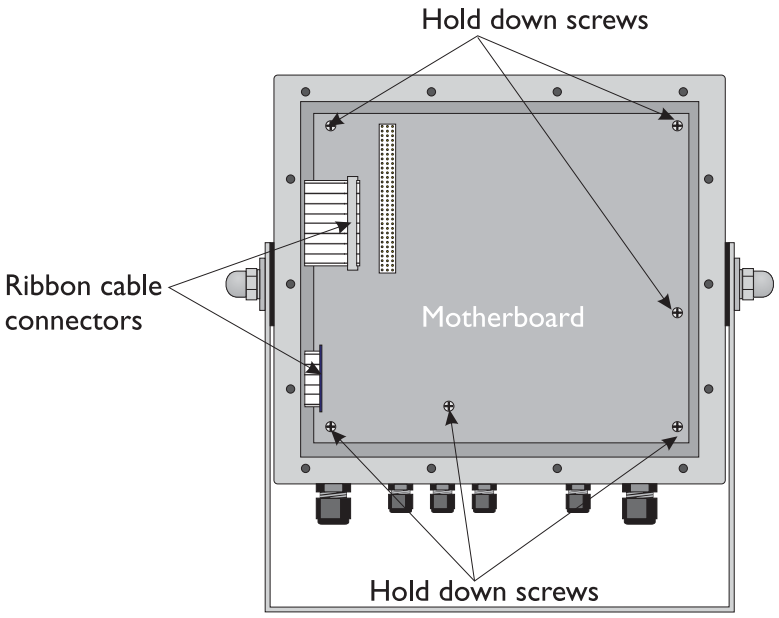


Figure 12
Main board

5. If you need to remove the display board, remove the four hold down screws shown in Figure 13

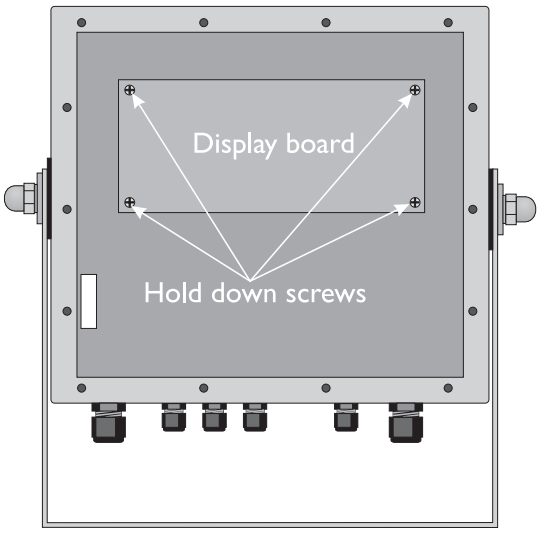
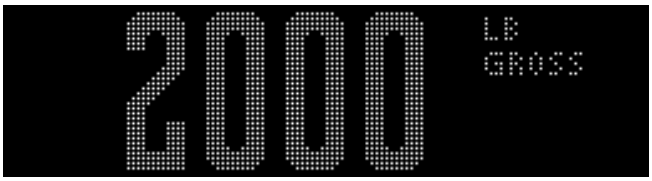


Figure 13
Display board

Re-assembly

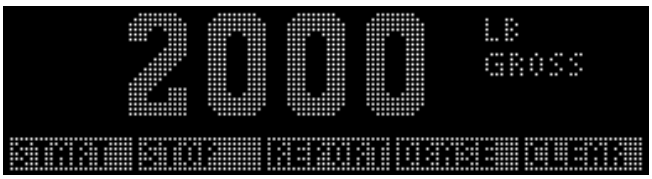
Replace any of the boards if needed and re-assemble the unit by reversing the disassembly procedure.

Appendix 1: Display Samples



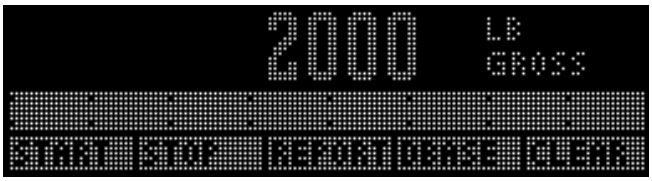
#1

#9

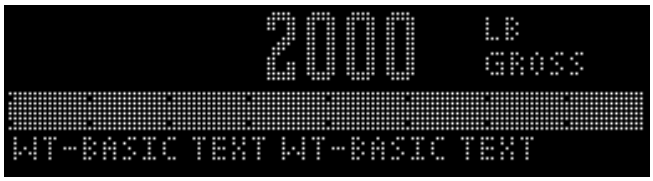


#2

#10

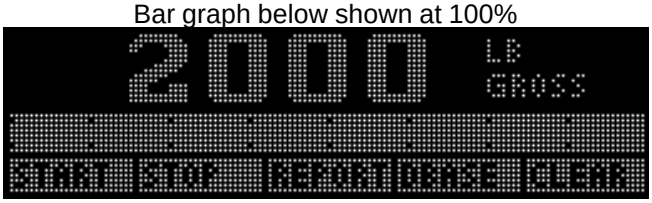


#3



#11

Bar graph below shown at 100%



#4

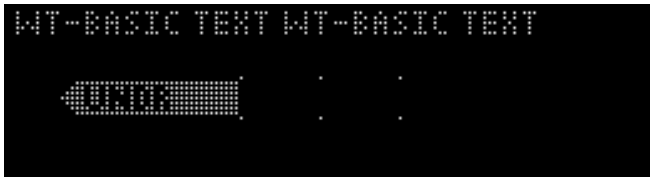
Bar graph below shown at 50%

#12

Checkweigher shown in overload condition below.

#5

Checkweigher shown in underload condition below.



#13

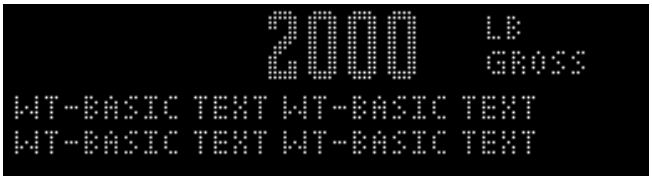
#6

Checkweigher shown in accept condition below.

#14

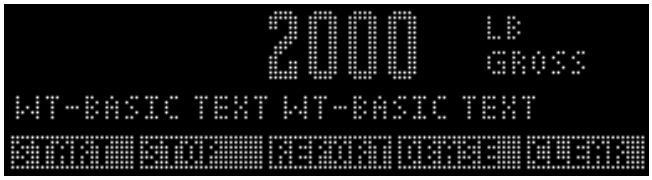
#7

#15



#8

#16



#17

#26

#18

#27

#19

#28

#20

#29

#21

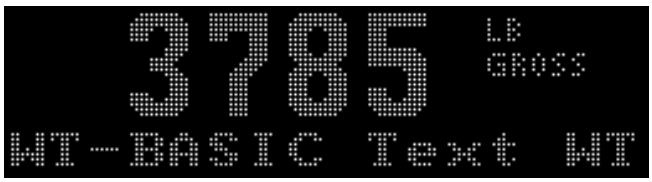
#30

#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

Do not use Harmonizer with QDT (Quartzell) bases.

We recommend the following values as a starting point for Harmonizer filtering:

Display Update = 10 sec
Ave. = 8 disp. or 48 = A-Ds
Constant = Level 4
Threshold = Zero

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.

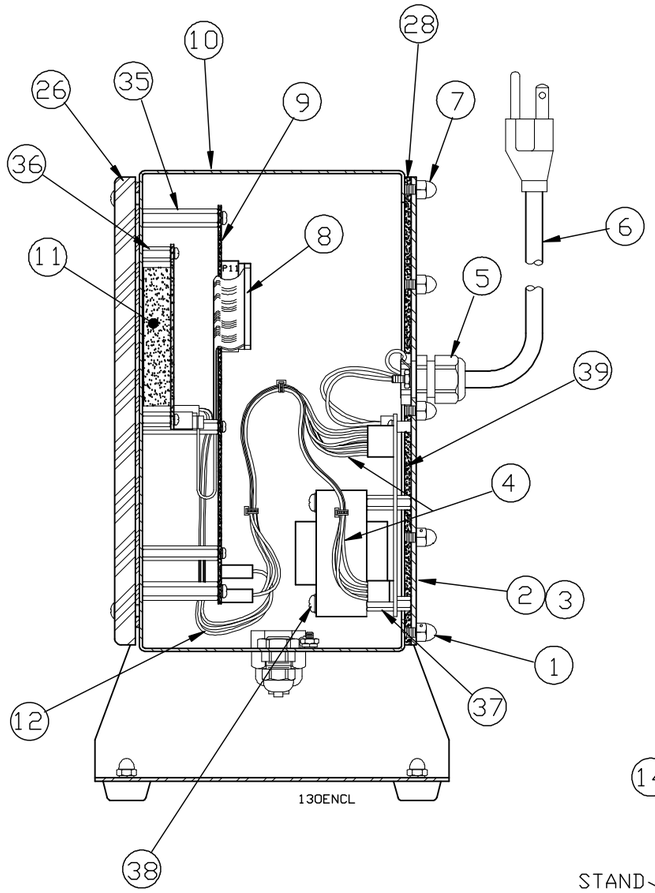
7. After a final value for Constant and Samples to Average has been set, enter the Threshld value established in step 1. If this value is too small your scale will act as if the filtering is off or not working. Increase the Threshld value until your scale stabilizes.

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

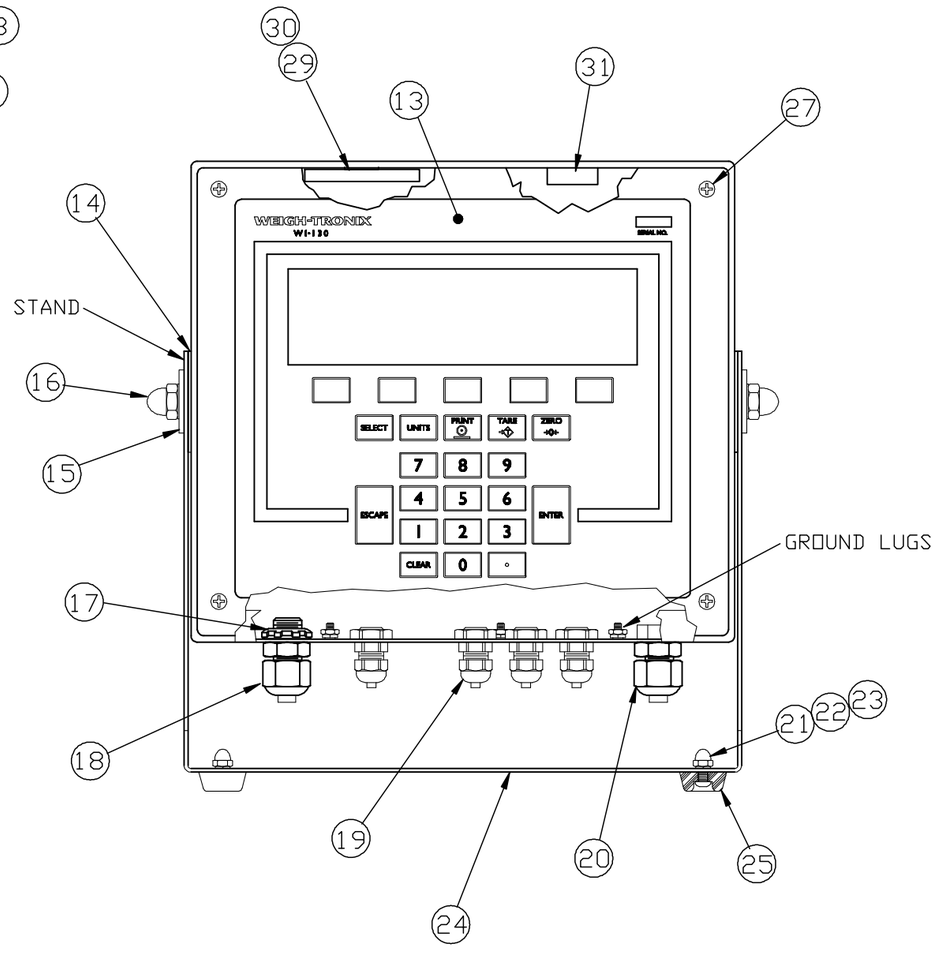
   When Harmonizer is properly adjusted the scale will be stable at zero and will rapidly display a stable test weight value.

WI-130 WDAC ENCLOSURE

PARTS AND ASSEMBLY

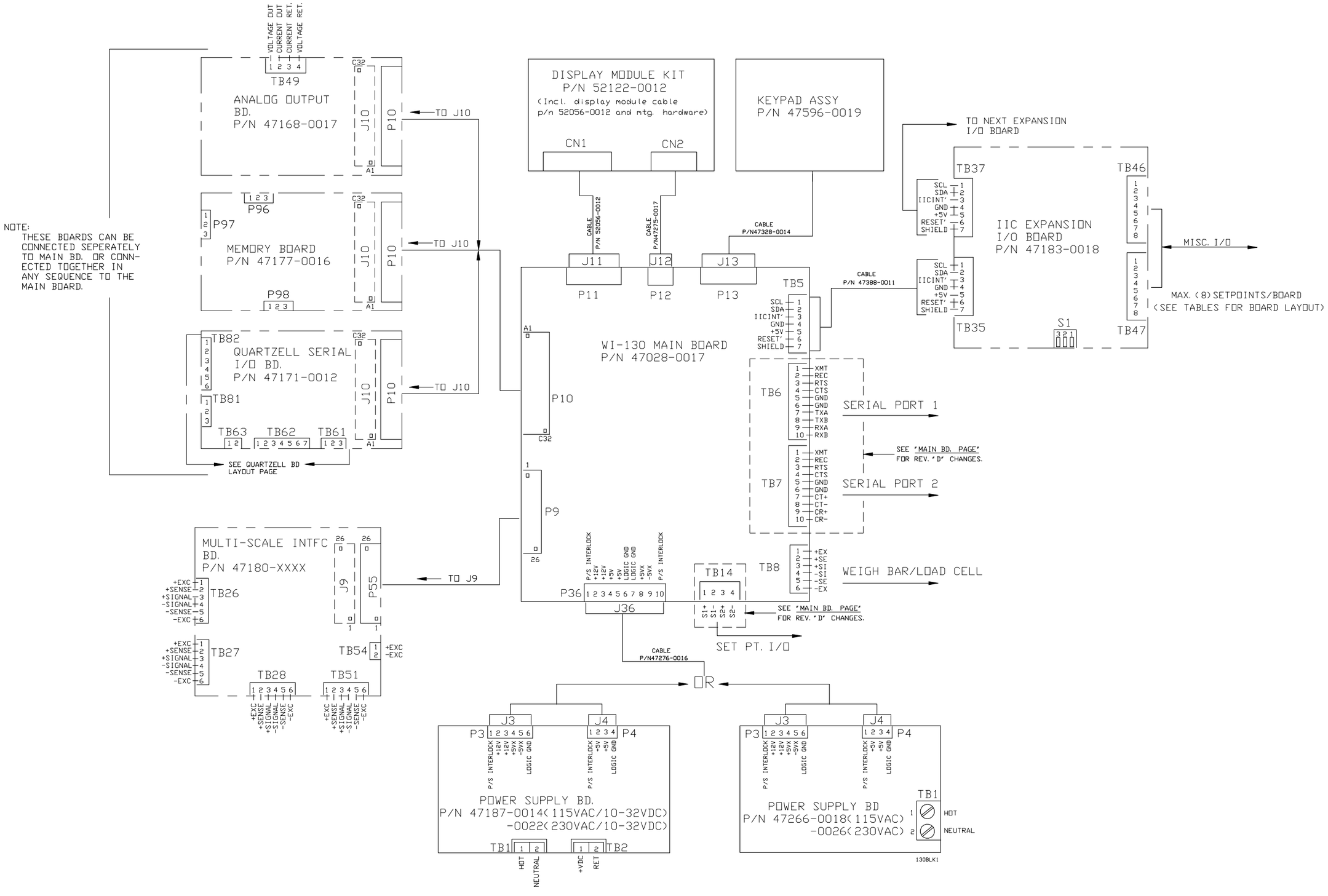


NOTE:
OPTIONAL PC BDS FOR THE WI-130
(INCLUDING PART NO'S) ARE SHOWN
ON FOLLOWING PAGES IN THIS MANUAL.



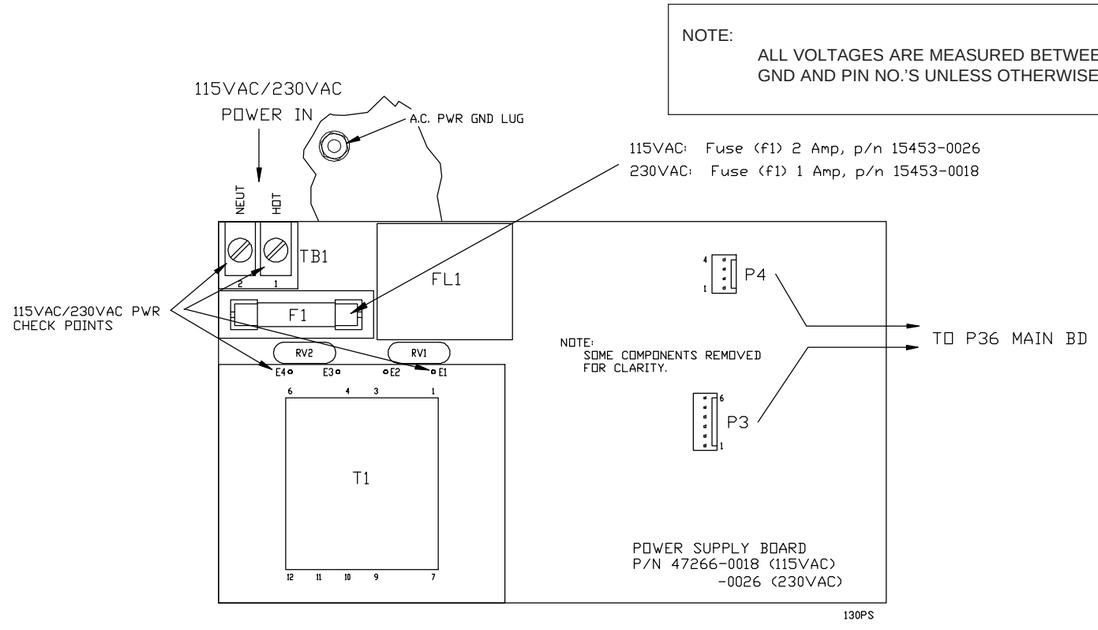
ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Nut, Special #10-32	26513-0013	2
2	Encl Backplate (Ac Version)	47231-0028	1
3	Encl Backplate (Ac-Dc Version)	47231-0010	1
4	Cable Assy (Pwr Supply/Main Bd)	47276-0016	1
5	Strain Relief	15257-0040	1
6	Power Cord (Ac)	15318-0013	1
7	Capnut, #10-32	15786-0016	12
8	Ribbon Cable, Main Bd.-to-Display (is included in kit, item 11).	52056-0012	1
9	Main Pc Bd Assy	47028-0017	1
10	Enclosure (S Steel)	47257-0019	1
11	Display Module Kit (Includes Display module, ribbon cable, and hardware)	52122-0012	1
12	Cable Assy (Pwr, Main/Display)	47275-0017	1
13	Keypad/Backer plate Assy	47596-0019	1
14	Neoprene Pad	19563-0025	2
15	Flat Washer	16163-0066	2
16	Capnut, .38-16	15771-0070	2
17	Locking Nut	22381-0011	1
18	Strain Relief	15257-0057	1
19	Strain Relief	15257-0024	4
20	Strain Relief	15257-0040	1
21	Lock Washer, #8	14474-0040	4
22	Capnut, #8-32	15771-0039	4
23	Screw, #8-32 X .44l	14473-0363	4
24	Stand	47232-0019	1
25	Rubber Foot	15349-0024	4
26	Bezel	47207-0010	1
33	Screw, #6-32 X .31L	15710-0231	4
28	Rear Gasket	47220-0013	1
29	Dessicant Bag	1088-12126	1
30	Foam Adhesive (2-side sticky)	1045-05982	1
31	VCI Emitter	48680-0014	1
32	Capacity Sticker(for front panel)	48322-0018	1
33	Battery, 3.6 VDC (B1, main bd.)	23957-0021	1
34	E-prom & Ram kit (main board)	48300-0022	1
35	Standoff, f/f #6-32 x 1.50L	14510-0848	4
36	Standoff, f/f #6-32 x .50L	14510-0756	4
37	Standoff, f/f #8-32 x .88L	14510-1077	2
38	Screw, #8 x 1.13L	14473-0421	4
39	Aluminum Heat Shrink Plate	47382-0017	1

WI-130 WDAC SYSTEM BLOCK DIAGRAM



WI-130 WDAC AC POWER SUPPLY BOARD

P/N 47266 -0018 (115 VAC), -0026 (230 VAC)



P3

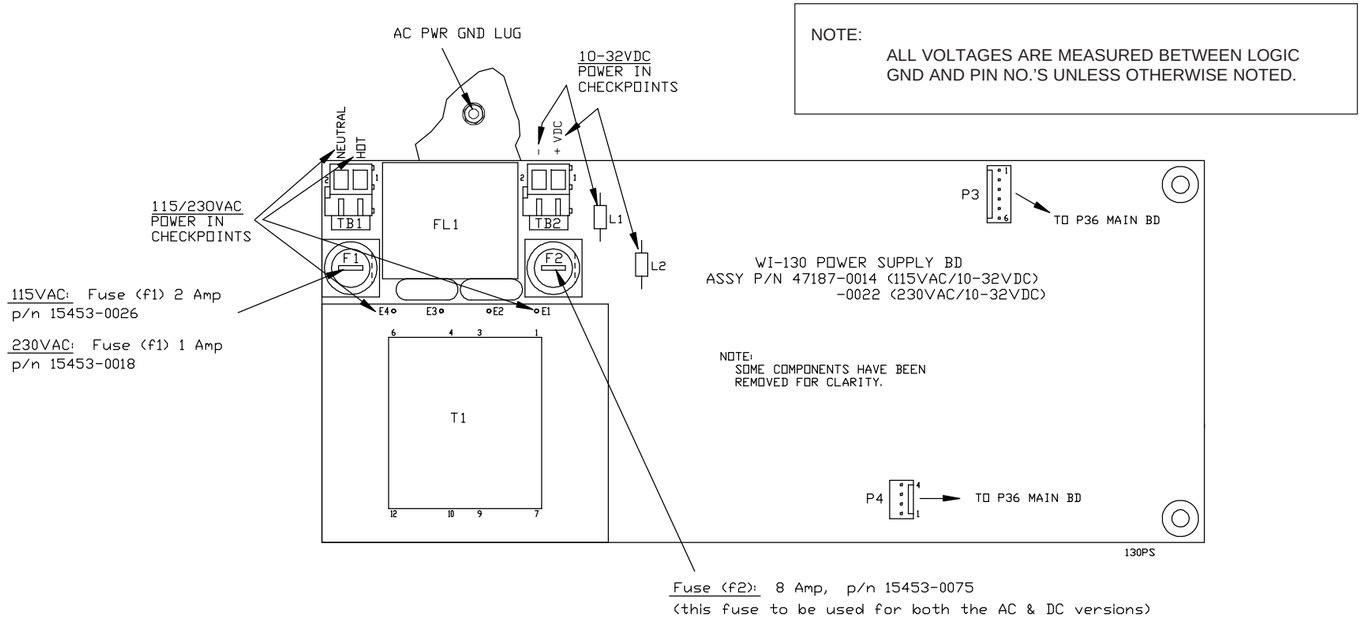
PIN #	SIGNAL	TOLERANCES
1	P/S INTERLOCK	(NOT USED)
2	+12V	+11.5-TO-15.0 VDC
3	+12V	+11.5-TO-15.0 VDC
4	+5V EXC	MEASURE FROM PINS 4-5 (9.4±5%)
5	-5V EXC	
6	GND	

P4

PIN #	SIGNAL	TOLERANCES
1	P/S INTERLOCK	(NOT USED)
2	+5V	(± 5%)
3	+5V	(± 5%)
4	LOGIC GND	

WI-130 WDAC AC/DC POWER SUPPLY BOARD

P/N 47187 -0014 (115VAC/10-32VDC), -0022 (230VAC/10-32VDC)



P3

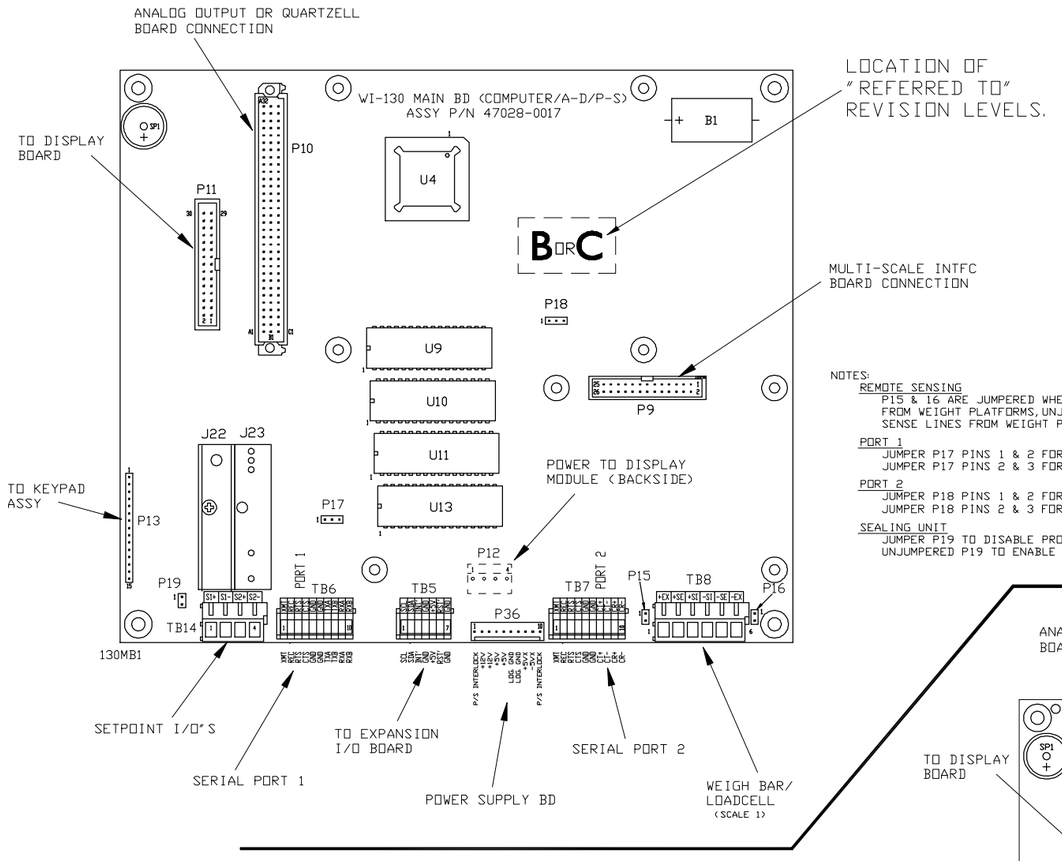
PIN #	SIGNAL	TOLERANCES
1	P/S INTERLOCK	11.0 VDC
2	+12V	+11.5-TO-15.0 VDC
3	+12V	+11.5-TO-15.0 VDC
4	+5V EXC	MEASURE FROM PINS 4-5 (9.4±5%)
5	-5V EXC	
6	LOGIC GND	

P4

PIN #	SIGNAL	TOLERANCES
1	P/S INTERLOCK	11.0 VDC
2	+5V	(± 5%)
3	+5V	(± 5%)
4	LOGIC GND	

WI-130 WDAC MAIN BOARD

P/N 47028-0017



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.

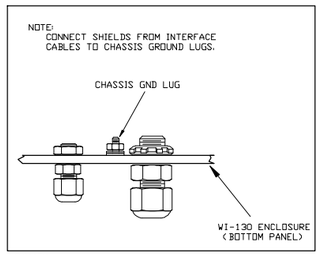
NOTES:

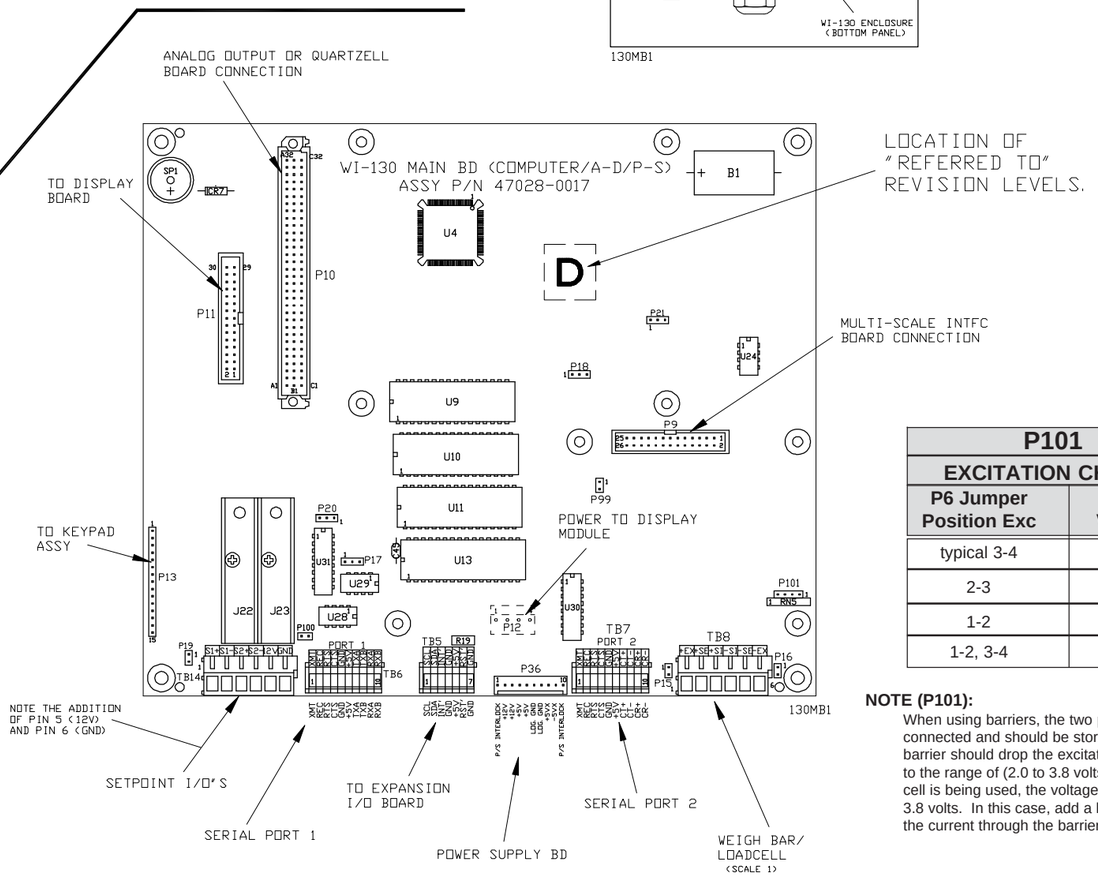
REMOTE SENSING
P15 & 16 ARE JUMPERED WHEN THERE ARE NO SENSE LINES FROM WEIGHT PLATFORMS, UNJUMPERED WHEN THERE ARE SENSE LINES FROM WEIGHT PLATFORMS.

PORT 1
JUMPER P17 PINS 1 & 2 FOR RS232.
JUMPER P17 PINS 2 & 3 FOR RS485.

PORT 2
JUMPER P18 PINS 1 & 2 FOR RS232.
JUMPER P18 PINS 2 & 3 FOR CURRENT LOOP.

SEALING UNIT
JUMPER P19 TO DISABLE PROGRAMMING (SEALED)
UNJUMPERED P19 TO ENABLE PROGRAMMING (UNSEALED)





P101	
EXCITATION CHART	
P6 Jumper Position Exc	**Typ. Voltage**
typical 3-4	10.0
2-3	5.0
1-2	6.0
1-2, 3-4	16.0

NOTE (P101):
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.

Serial port 1 (TB6) & Serial port 2 (TB7) can each support 2 external devices. Each port provides 5VDC @ 350mA maximum. If this voltage drops below 4.6 VDC, the indicator will reset.

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.

NOTES:

REMOTE SENSING
P15 & 16 ARE JUMPERED WHEN THERE ARE NO SENSE LINES FROM WEIGHT PLATFORMS, UNJUMPERED WHEN THERE ARE SENSE LINES FROM WEIGHT PLATFORMS.

PORT 1 (TB-6)
JUMPER P17 PINS 1 & 2 FOR RS232.
JUMPER P17 PINS 2 & 3 FOR RS485.
EXTERNAL KEYBOARD CONNECTION: TB6-6 IS NOW +5V (WAS GND).

PORT 2 (TB-7)
JUMPER P18 PINS 1 & 2 FOR RS232.
JUMPER P18 PINS 2 & 3 FOR CURRENT LOOP.
EXTERNAL KEYBOARD CONNECTION: TB7-6 IS NOW +5V (WAS GND).

SEALING UNIT
JUMPER P19 TO DISABLE PROGRAMMING (SEALED)
UNJUMPERED P19 TO ENABLE PROGRAMMING (UNSEALED)

P99, P100
SEE 'KEYBOARD CABLE CONNECTIONS' PAGE.

WI-130 WDAC ANALOG OUTPUT BOARD *(OPTIONAL)*

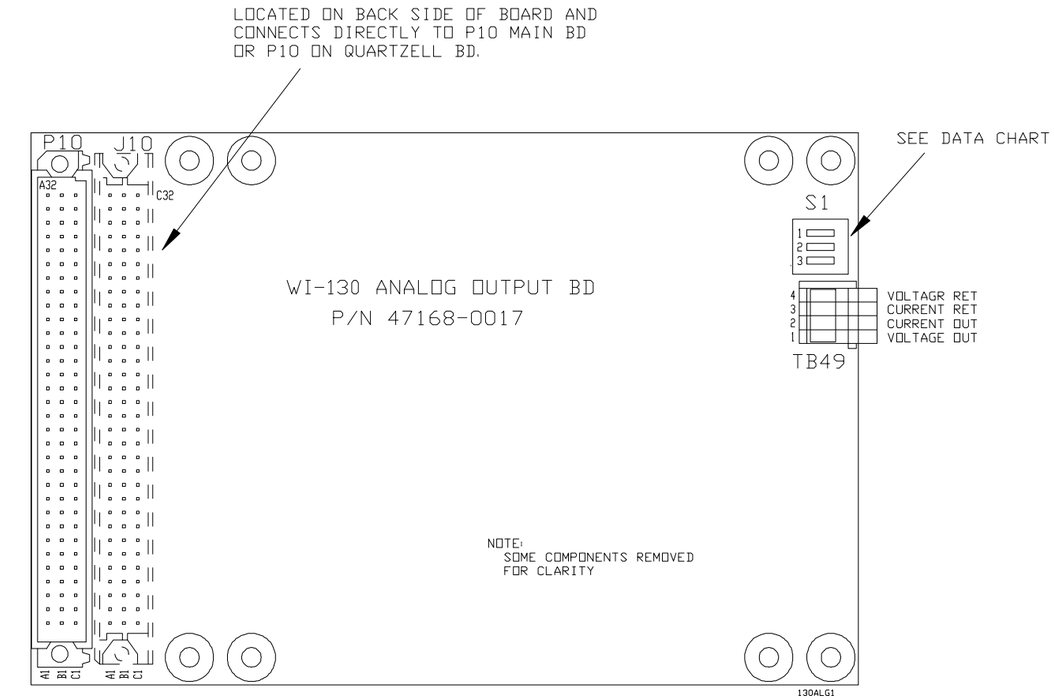
P/N 47168-0017

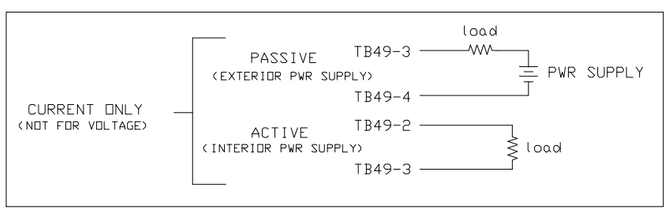
(Field Install Kit p/n 47666-0071)

	S1			VOLTAGE/CURRENT LOAD		
	1	2	3	OUTPUT	RETURN	LOAD RESISTANCE
0 TO +5V	1	0	0	TB49-1	TB49-4	1670 OHMS MIN.
0 TO +10V	0	0	0	TB49-1	TB49-4	3300 OHMS MIN.
1 TO 5 ma.	0	0	0	TB49-2	TB49-3	3900 OHMS MAX.
4 TO 20 ma.	0	1	0	TB49-2	TB49-3	970 OHMS MAX.
10 TO 50 ma.	0	1	1	TB49-2	TB49-3	390 OHMS MAX.

0=OFF
1=ON

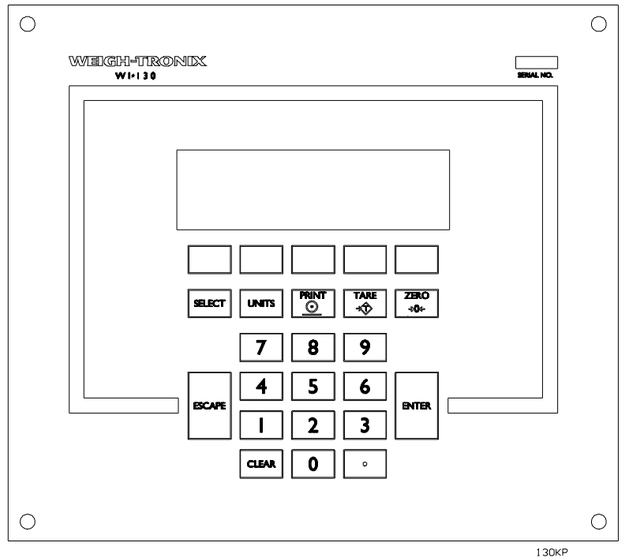
NOTE: *do not adjust potentiometer (R34). This is pre-set at factory and must not be changed.*

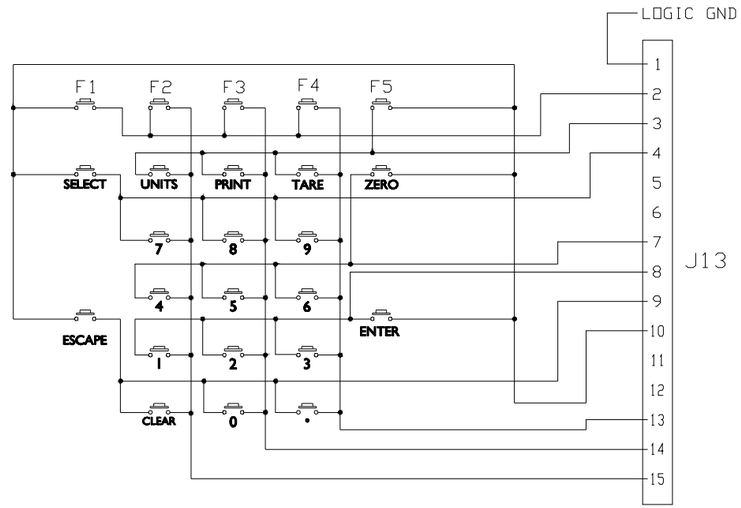




WI-130 WDAC FRONT PANEL OVERLAY *(keypad/backer plate assy)*

P/N 47596-0019





SCHEMATIC DIAGRAM

WI-130 WDAC 2-5 MULTI-SCALE BOARD *(OPTIONAL)*

P/N 47180: **-0011** (2-SCALE INTERFACE), **-0029** (2-3 SCALE INTERFACE), **-0037** (2-4 SCALE INTERFACE), **-0045** (2-5 SCALE INTERFACE)

NOTES:

REMOTE SENSING:

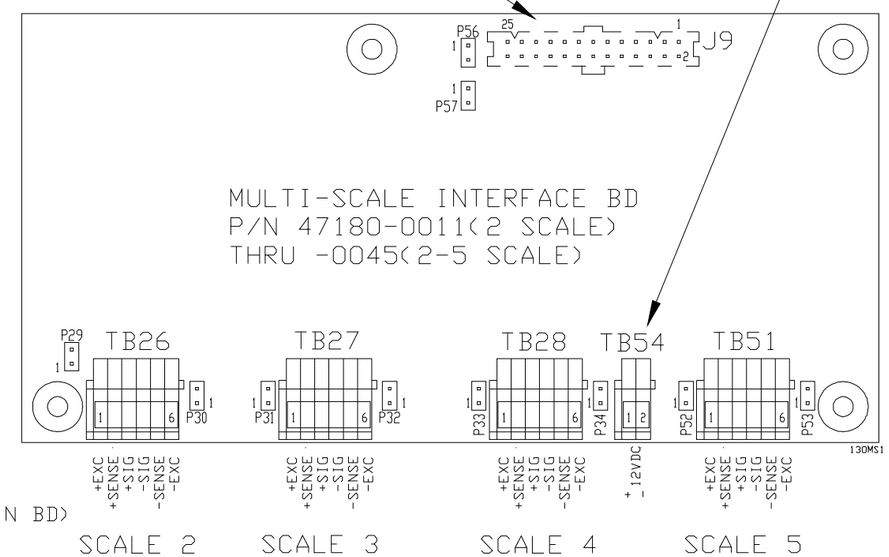
JUMPER P29, P30, P31, P32, P33, P34, P52, P53 WHEN THERE ARE NO SENSE LINES FROM WEIGHT PLATFORMS.
NOT JUMPERED WHEN THERE ARE SENSE LINES FROM WEIGHT PLATFORMS.

INTERNAL POWER SOURCE:
JUMPER P56 & P57

EXTERNAL POWER SOURCE:
P56 & P57 NOT JUMPERED

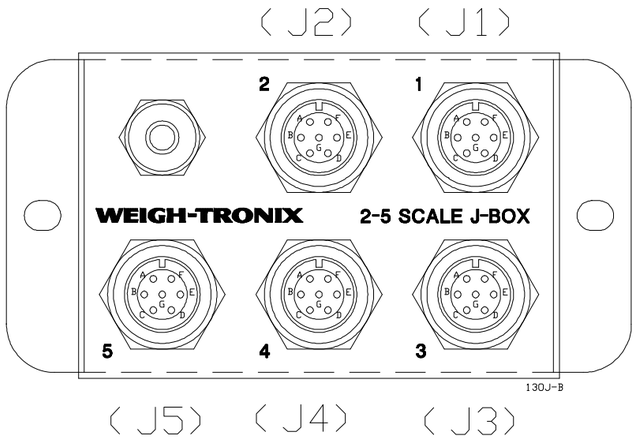
INPUT FOR EXTERNAL PWR SOURCE FOR MORE THAN 20 WEIGHT SENSORS
(+12 VDC WITH ISOLATED GND.)

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



WI-130 WDAC MULTI-SCALE J-BOX ASSEMBLY *(OPTIONAL)*

P/N 47404: **-0011** *(2-SCALES)*, **-0029** (3-SCALES), **-0037** *(4-SCALES)*, **-0045** *(5-SCALES)*



		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MAIN PC BOARD P/N 47028-0017		
SCALE 1	GREEN	TB8-1	J1-B	+EXC-1
	YELLOW	TB8-2	J1-F	+SENSE-1
	WHITE	TB8-3	J1-C	+SIGNAL-1
	RED	TB8-4	J1-A	-SIGNAL-1
	BLUE	TB8-5	J1-E	-SENSE-1
	BLACK	TB8-6	J1-D	-EXC-1
	BLACK	GND-1	J1-G	SHIELD-1
		MULTI-SCALE BD P/N 47180-1 THRU 4		
SCALE 2	BROWN	TB26-1	J2-B	+EXC-2
	ORANGE	TB26-2	J2-F	+SENSE-2
	VIOLET	TB26-3	J2-C	+SIGNAL-2
	GRAY	TB26-4	J2-A	-SIGNAL-2
	WHT/BLK	TB26-5	J2-E	-SENSE-2
	WHT/BRN	TB26-6	J2-D	-EXC-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 47180-1 THRU 4		
SCALE 3	BROWN	J2-B	J3-B	+EXC-3
	WHT/RED	TB27-2	J3-F	+SENSE-3
	WHT/YEL	TB27-3	J3-C	+SIGNAL-3
	WHT/GRN	TB27-4	J3-A	-SIGNAL-3
	WHT/BLU	TB27-5	J3-E	-SENSE-3
	WHT/BRN	J2-D	J3-D	-EXC-3
	BLACK	J2-G	J3-G	SHIELD-3
	SHIELD		GND-1	DRAIN WIRE

		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MULTI-SCALE BD P/N 47180-1 THRU 4		
SCALE 4	BROWN	J3-B	J4-B	+EXC-4
	WHT/VIO	TB28-2	J4-F	+SENSE-4
	WHT/GRA	TB28-3	J4-C	+SIGNAL-4
	WHT/BLK/BRN	TB28-4	J4-A	-SIGNAL-4
	WHT/BLK/RED	TB28-5	J4-E	-SENSE-4
	WHT/BRN	J3-D	J4-D	-EXC-4
	BLACK	J3-G	J4-G	SHIELD-4
	SHIELD		GND-1	DRAIN WIRE

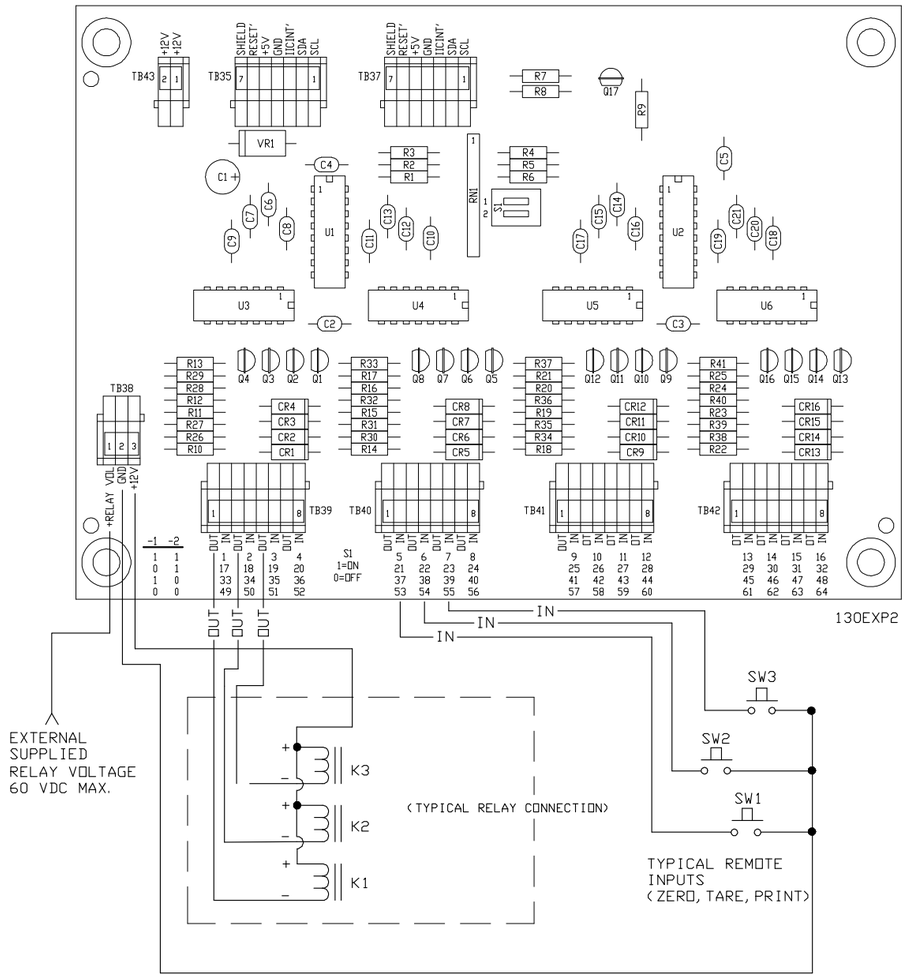
		WIRE IDENTIFICATION J-BOX 47404		
	W-T COLOR	ORIGIN	DESTINATION	SIGNAL
		MULTI-SCALE BD P/N 47180-1 THRU 4		
SCALE 5	BROWN	J4-B	J5-B	+EXC-5
	WHT/BLK/ORN	TB51-2	J5-F	+SENSE-5
	WHT/BLK/YEL	TB51-3	J5-C	+SIGNAL-5
	WHT/BLK/GRN	TB51-4	J5-A	-SIGNAL-5
	WHT/BLK/BLU	TB51-5	J5-E	-SENSE-5
	WHT/BRN	J4-D	J5-D	-EXC-5
	BLACK	J4-G	J5-G	SHIELD-5

Multi-Scale Field Installation Kits *(incl. pc board, j-box, and mtg. hardware)*

P/N 47623: **-0057** *(2-SCALES)*, **-0065** *(3-SCALES)*, **-0073** *(4-SCALES)*, **-0081** *(5-SCALES)*

WI-130 EXTERNAL (16) I/O CUTOFF EXPANSION BD.

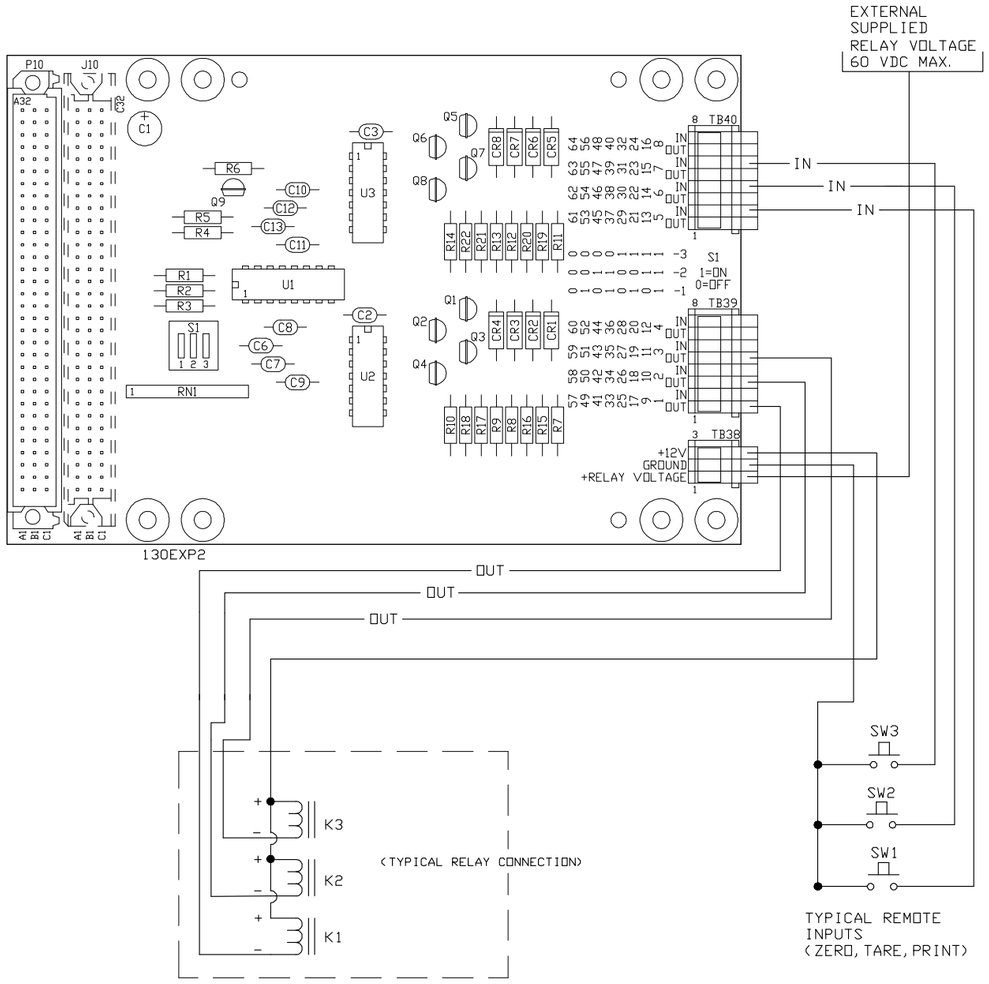
P/N 49853-0013



WI-130 EXTERNAL (8) I/O CUTOFF EXPANSION BD.

P/N 49866-0018

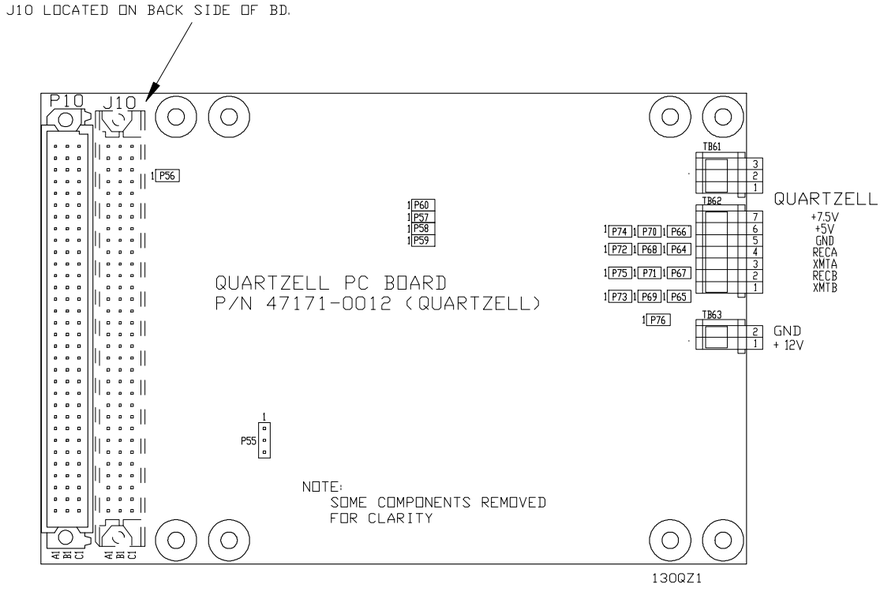
(Field Installation Kit p/n 47666-0113)



WI-130 WDAC QUARTZELL BOARD *(OPTIONAL)*

P/N 47171-0012

(Field Installation Kit p/n 47666-0089)



NOTES:

1. 47171-0012 IS SET UP AS A SINGLE PORT QUARTZELL INTERFACE OPTION. USE THE JUMPERS TO JUMP THE FOLLOWING CONNECTORS PINS 1 TO 2 FOR QUARTZELL OPTION; P55, P56, P58, P68, P69, P70, P71.

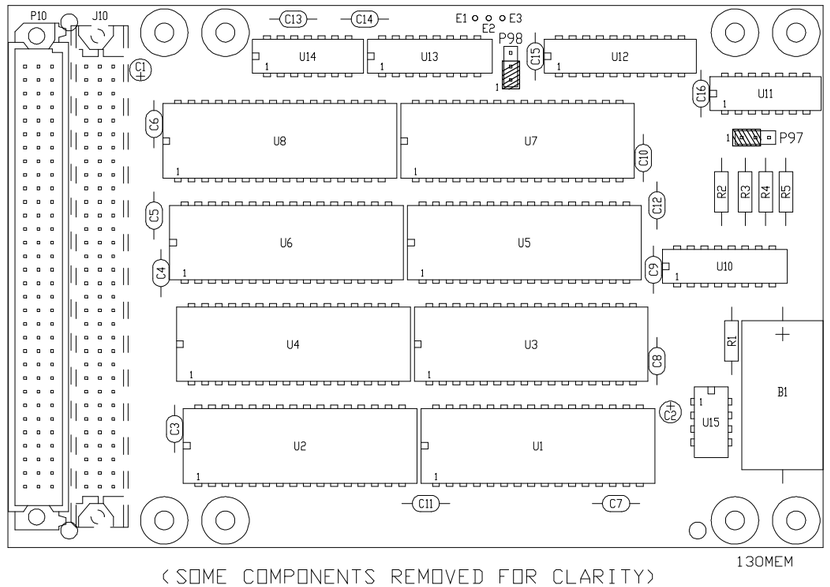
WI-130 WDAC MEMORY BOARD *(OPTIONAL)*

P/N 47177-0016

(Field Installation Kit p/n 47666-0105)

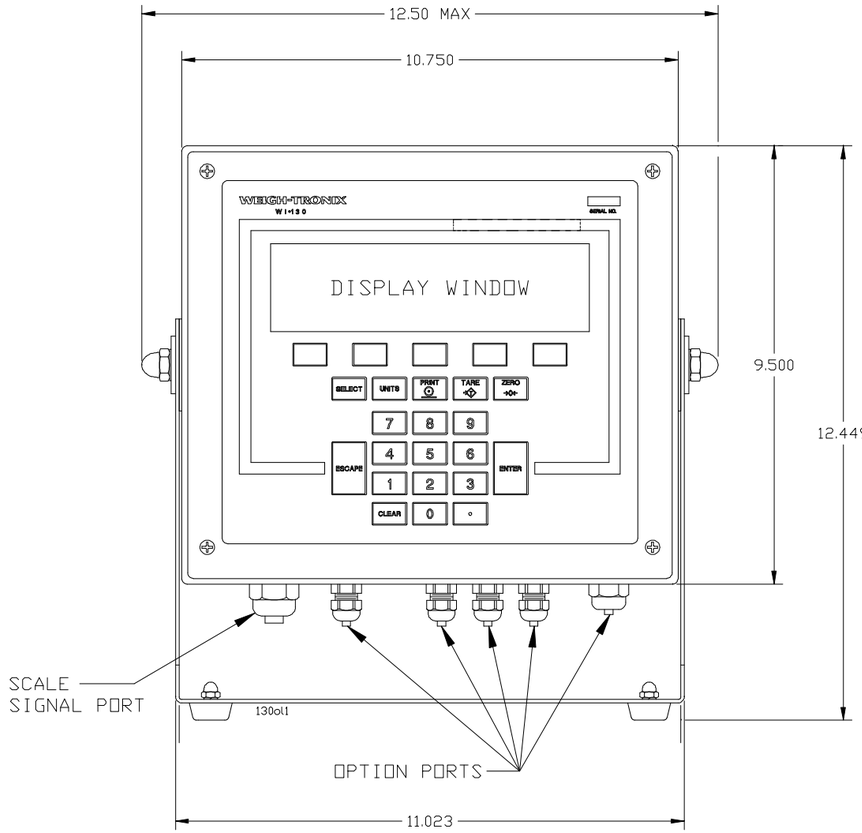
NOTE:

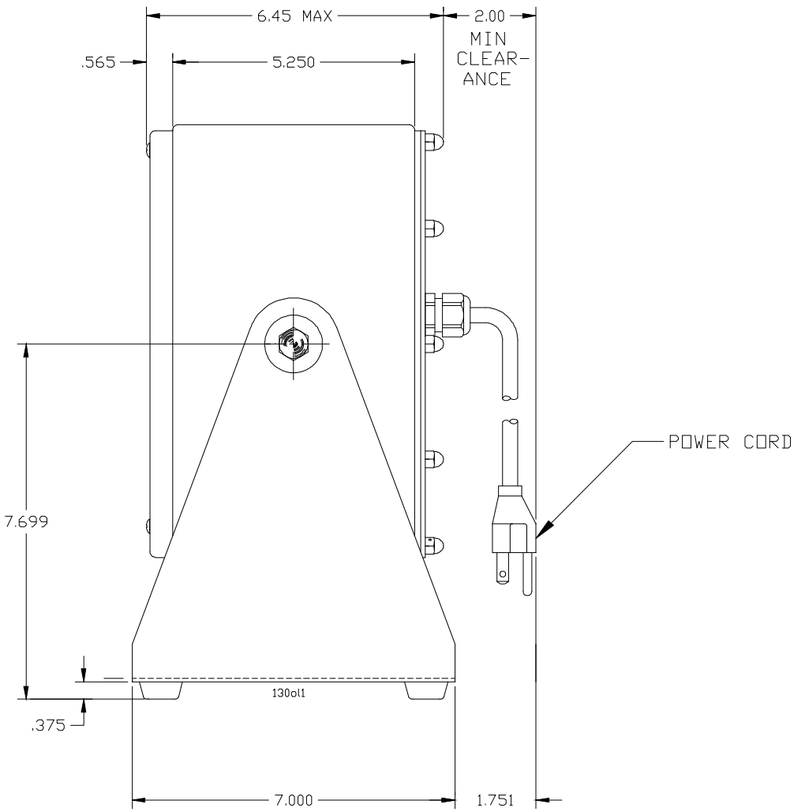
1. FOR MEMORY BD TO OPERATE PROPERLY JUMPER PINS 1 & 2 ON P97 & P98.

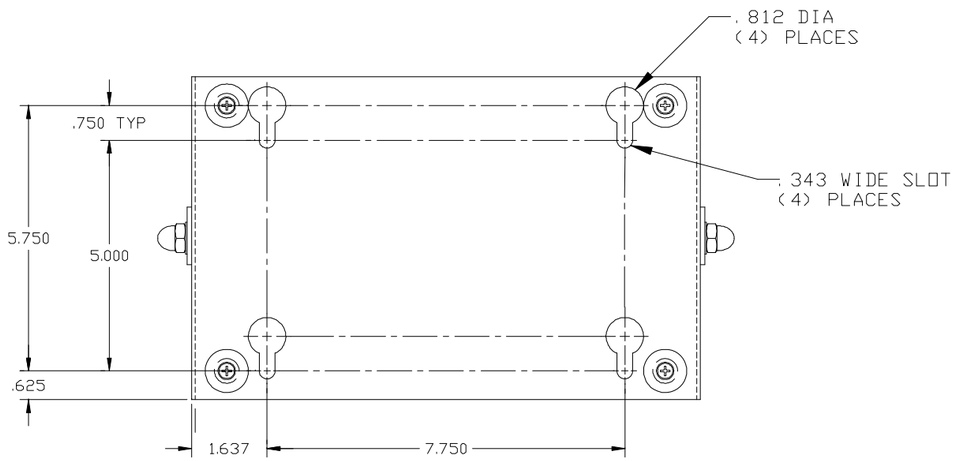


(SOME COMPONENTS REMOVED FOR CLARITY)

WI-130 WDAC ENCLOSURE *(W/ STAND)*
OUTLINE DRAWING

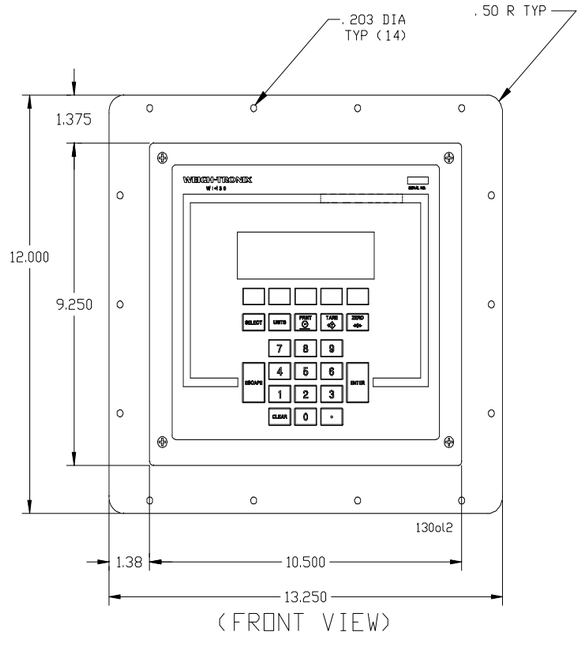




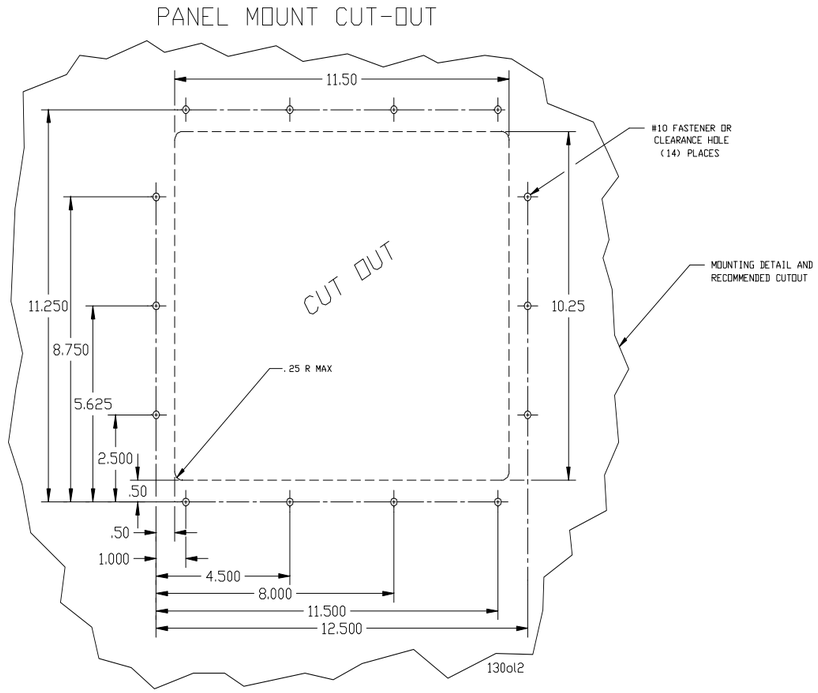


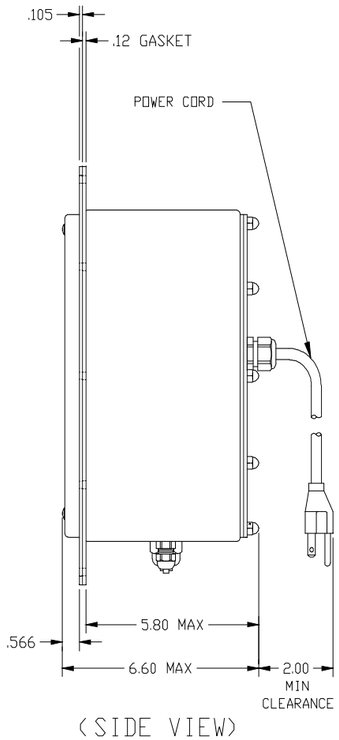
WI-130 WDAC ENLCOSURE

PANEL MOUNT OUTLINE DRAWING

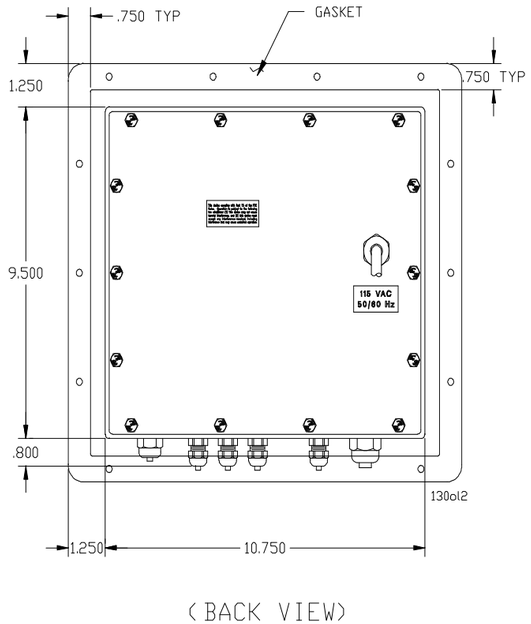


(FRONT VIEW)



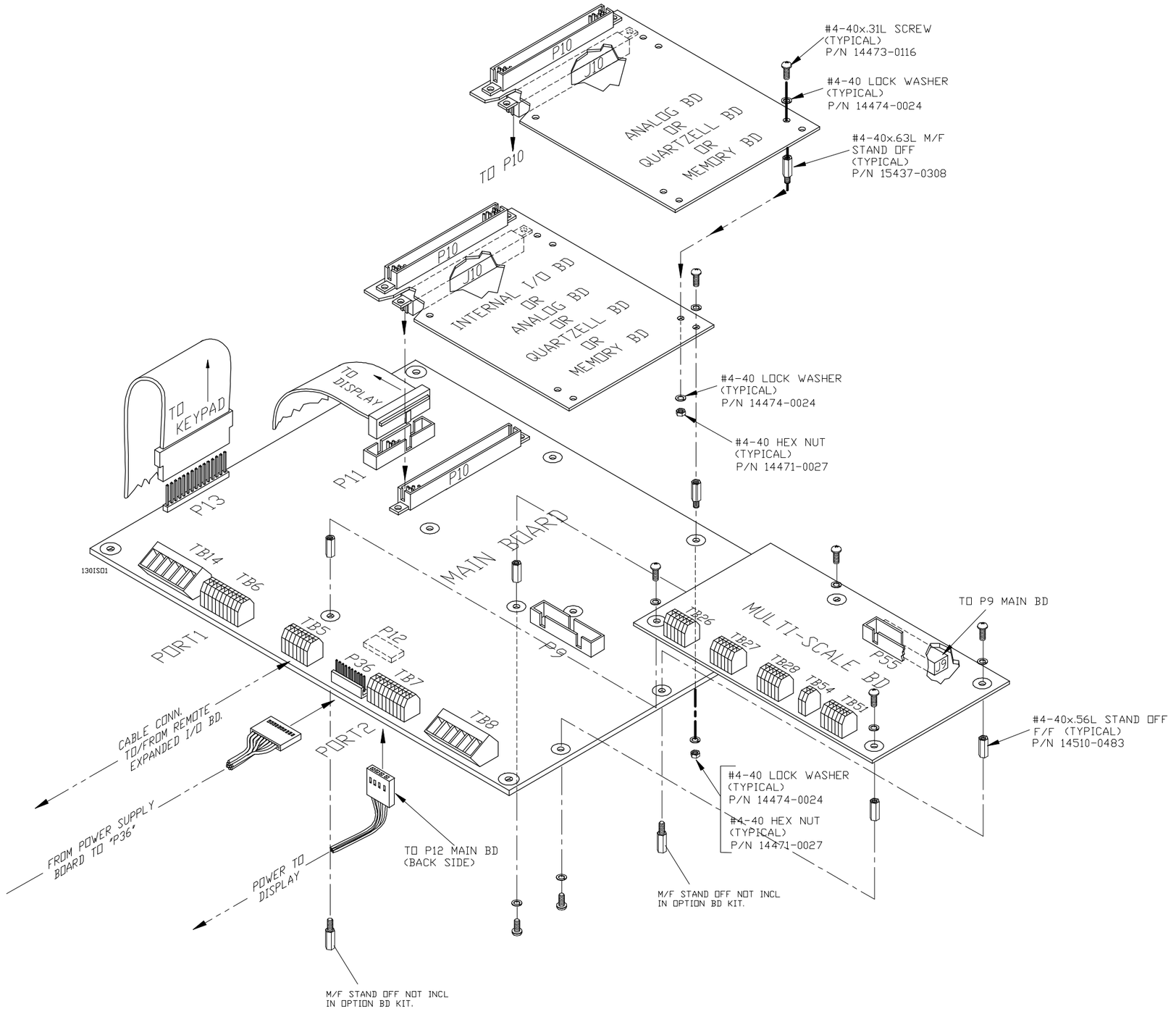


(SIDE VIEW)



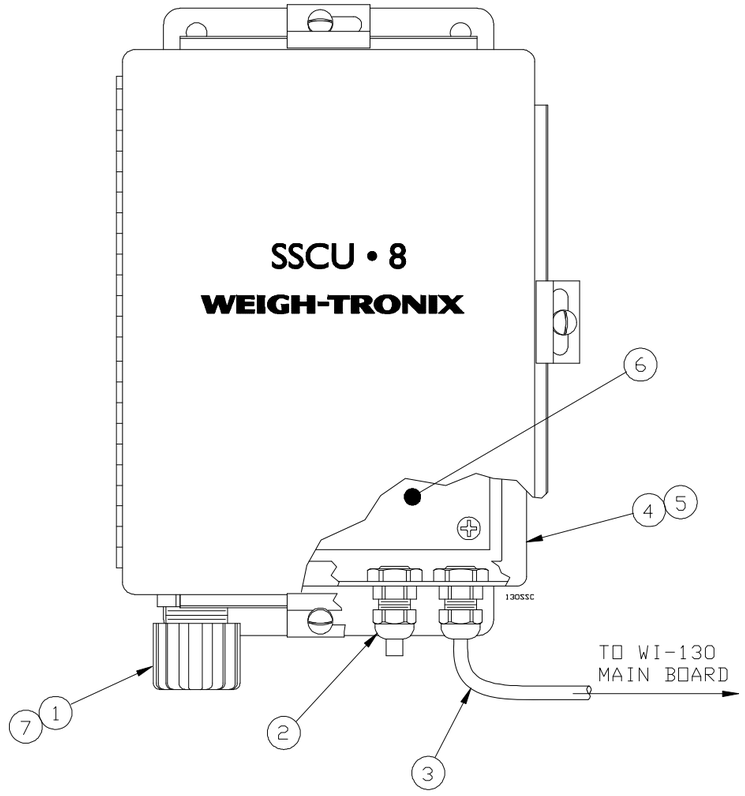
(BACK VIEW)

WI-130 WDAC
OPTION BOARD CONNECTIONS

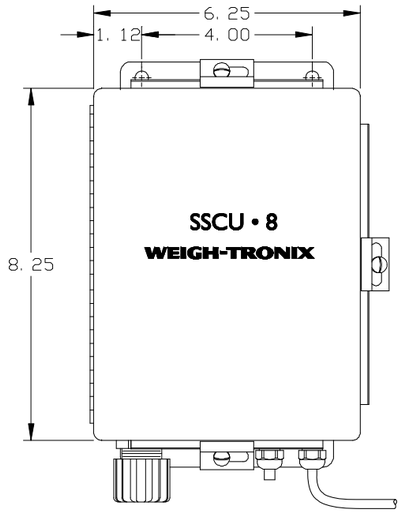


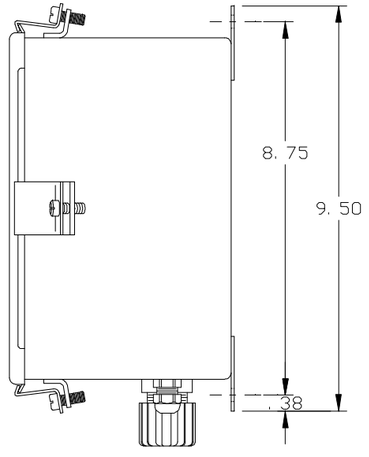
WI-130 WDAC

SOLID STATE CONTROL UNIT (SSCU-8)
PARTS AND ASSEMBLY

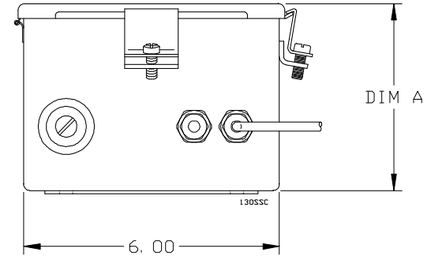


ITEM NO.	DESCRIPTION	W-T P/N	QTY
1	Strain Relief	22380-0053	1
2	Strain Relief	15257-0024	2
3	Cable (sscu-to-wi-130)	47388-0011	1
4	Enclosure (steel, painted)	47665-0015	1
5	Enclosure (stainless)	47665-0023	1
6	Remote Exp. Control I/O pc Board	47183-0018	1
7	Lock Nut (self sealing)	22381-0011	1





DATA CHART		
PART NO.	DIM "A"	DESCRIPTION
47192-0017	4. 38	STAINLESS
47192-0025	3. 87	PAINTED CARBON



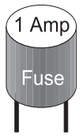
(BOTTOM VIEW)

Setpoint Operation

If setpoints 1 & 2 are programmed in SimPoser as inputs, the physical location for these will always be on the motherboard TB14. The setpoint location for setpoints 1 & 2 on the option card(s) will then be invalid, and do not function.

If setpoints 1 & 2 are programmed in SimPoser for outputs, the TB14 location on the motherboard will act in parallel to the physical location of setpoints 1 & 2 (set by switches on remote expanded control PCBs) on the option card(s).

When only using TB14 modules (2 maximum) on the main board without any setpoint option cards, they can be used as either inputs or outputs.



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-00A	-0155	1.25	19373K-1,25A
-0056	.125	19373K-25A	-0163	1.6	19373K-1,6A
-0064	.160	19373K-60A	-0171	2.0	19373K-2A
-0072	.200	19373K-00A	-0189	2.5	19373K-2,5A
-0080	.250	19373K-50A	-0197	3.15	19373K-3,15A
-0098	.315	19373K-15A	-0205	4.0	19373K-4A
-0106	.400	19373K-00A	-0213	5.0	19373K-5A
-0114	.500	19373K-00A	-0221	6.3	19373K-6,3A

The OPTO-22 Generation 4 I/O modules can be used on the mainboard (max. 2) or on the optional Remote Expanded Control Interface Boards (max. 32).

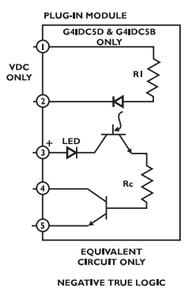
NEW P/N 48552	OLD P/N 46571-	OPTO-22 P/N	I/O Type AC or DC Input or Output	Color	External circuit voltage range	External circuit Max. Current	Turn on time msec.	Turn off time msec.	I/O operating temperature range
-0019	-0010	G4IDC5D	DC only (input)	White	2.5-28 vdc only	30mA	1.0	1.5	-30°Cto 70°C
-0027	-0028	G4IDC5B	DC only (input)	White	4.0-16 vdc only	45mA	0.05	0.1	-30°Cto 70°C
-0035	-0036	G4IDC5	AC/DC (input)	White	12-32	25mA	5	5	-30°Cto 70°C
-0043	-0044	G4IDC5G	AC/DC (input)	White	35-60	25mA	10	15	-30°Cto 70°C
-0050	-0051	G4IAC5	AC/DC (input)	Yellow	90-140	11mA	11	20	-30°Cto 70°C
-0068	-0069	G4IAC5A	AC/DC(input)	Yellow	180-280	6.5mA	2	20	-30°Cto 70°C
-0076	-0077	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	-0085	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	-0093	G4OAC5	AC (output) N.O. Normally Open	Black	12-140 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0100	-0101	G4OAC5A	AC (output) N.O. Normally Open	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0118	-0119	G4OAC5A5	AC (output) N.C. Normally Closed	Black	24-280 AC only	3A@45°C 2A@70°C	---	---	-30°Cto 70°C
-0126	-0127	G4ODC5R	AC/DC (output) N.O. Dry contact Normally Open	Red	130VAC/100VDC	1.5A	500	500	0°C to 70°C
-0134	-0135	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
48552-0019	48552-0035, 48552-0043	48552-0076	48552-0092	48552-0126
48552-0027	48552-0050, 48552-0068	48552-0084	48552-0100	48552-0134
			48552-0118	

A



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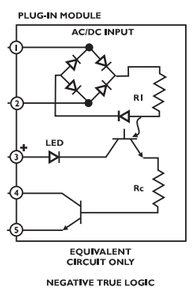

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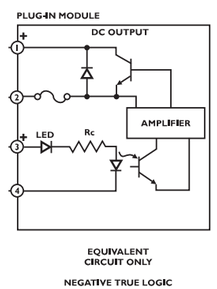

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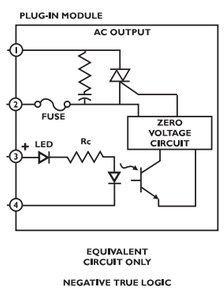

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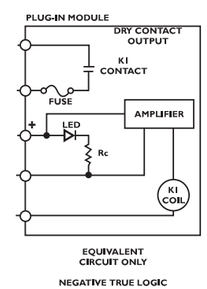
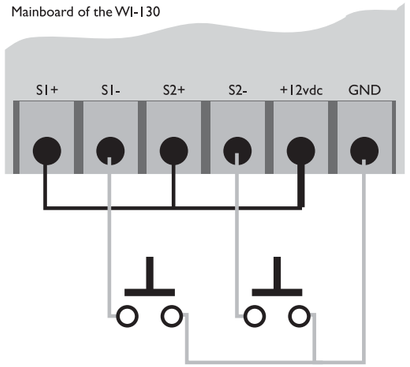
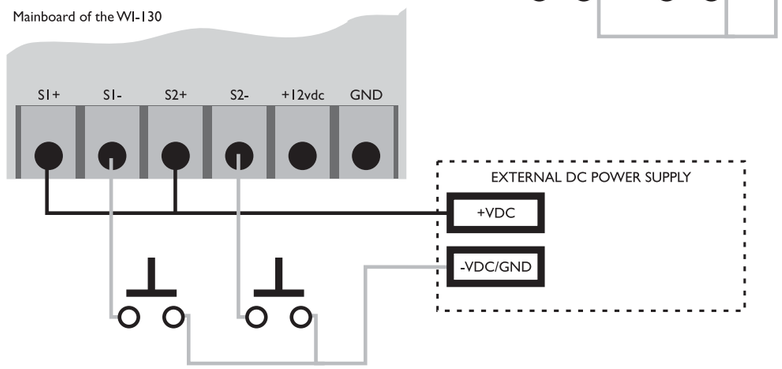
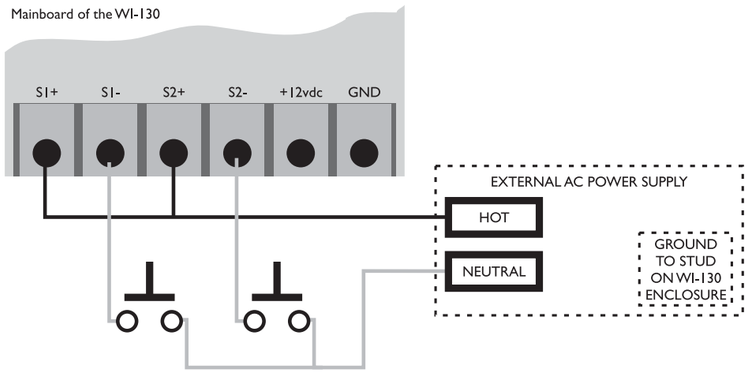


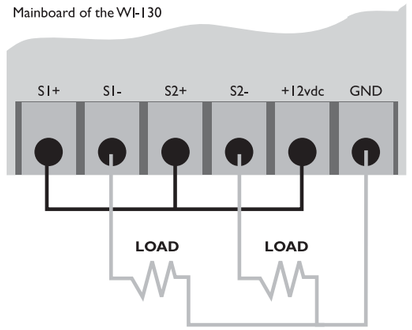
WIRING DIAGRAM FOR INPUT MODULES

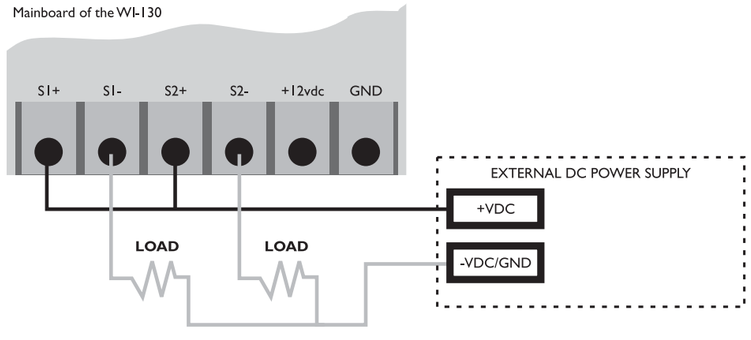


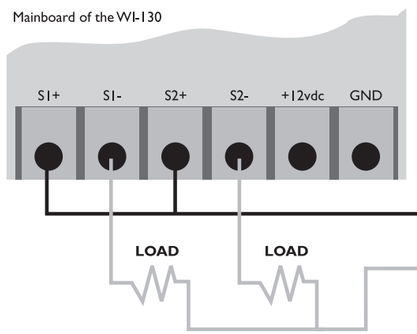




WIRING DIAGRAM FOR OUTPUT MODULES



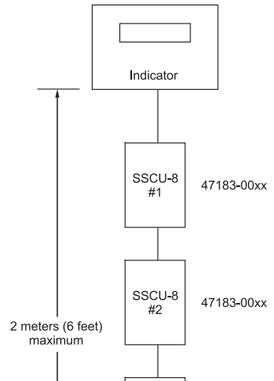




SSCU-8 Caution!

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.

The SSCU-8 card should be isolated from any other possible grounds (i.e. box, conduit, etc.). Only the cable connections from the indicator should provide ground to the SSCU-8 card.



NOTE:

WI-130 WDAC SSCU-8

REMOTE EXPANDED CONTROL; I/O BOARD
P/N 47183-0018

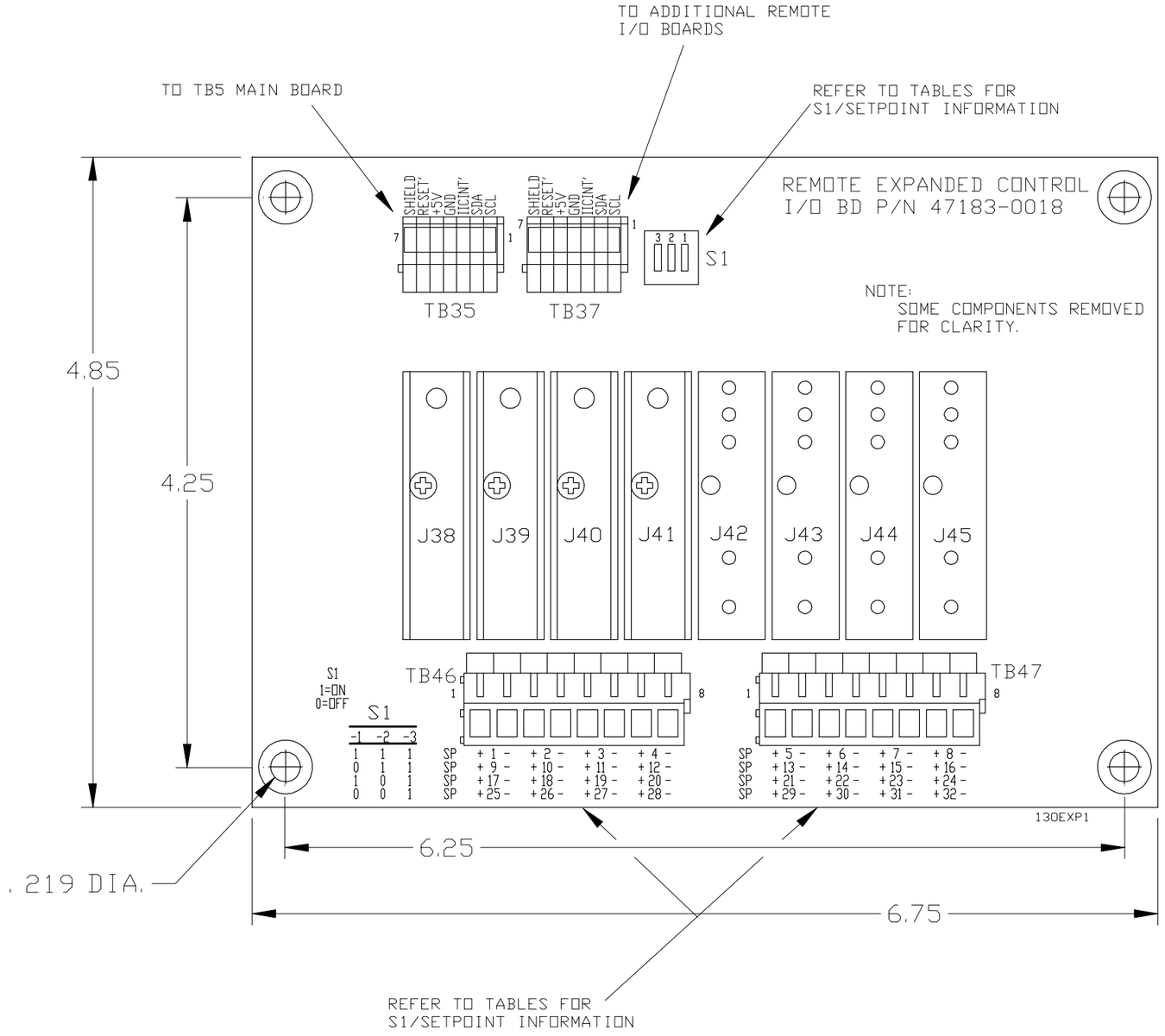


Table 1: Setpoints 1 thru 8

SW1 (1)ON	(2)ON	(3)ON
SETPOINT #	TB #	PIN #
1 (+)	46	1
1 (-)	46	2
2 (+)	46	3
2 (-)	46	4
3 (+)	46	5
3 (-)	46	6
4 (+)	46	7
4 (-)	46	8
5 (+)	47	1
5 (-)	47	2
6 (+)	47	3
6 (-)	47	4
7 (+)	47	5
7 (-)	47	6
8 (+)	47	7
8 (-)	47	8

Table 2: Setpoints 9 thru 16

SW1 (1)OFF	(2)ON	(3)ON
SETPOINT #	TB #	PIN #
9 (+)	46	1
9 (-)	46	2
10 (+)	46	3
10 (-)	46	4
11 (+)	46	5
11 (-)	46	6
12 (+)	46	7
12 (-)	46	8
13 (+)	47	1
13 (-)	47	2
14 (+)	47	3
14 (-)	47	4
15 (+)	47	5
15 (-)	47	6
16 (+)	47	7
16 (-)	47	8

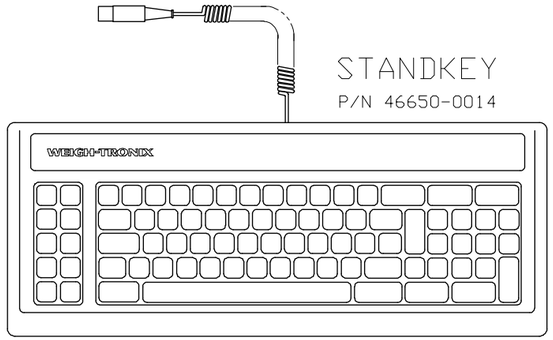
Table 3: Setpoints 17 thru 24

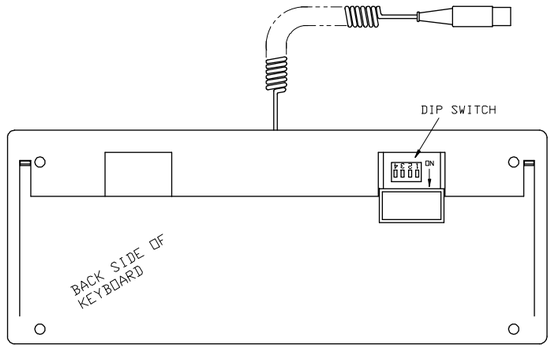
SW1 (1)ON	(2)OFF	(3)ON
SETPOINT #	TB #	PIN #
17 (+)	46	1
17 (-)	46	2
18 (+)	46	3
18 (-)	46	4
19 (+)	46	5
19 (-)	46	6
20 (+)	46	7
20 (-)	46	8
21 (+)	47	1
21 (-)	47	2
22 (+)	47	3
22 (-)	47	4
23 (+)	47	5
23 (-)	47	6
24 (+)	47	7
24 (-)	47	8

Table 4: Setpoints 25 thru 32

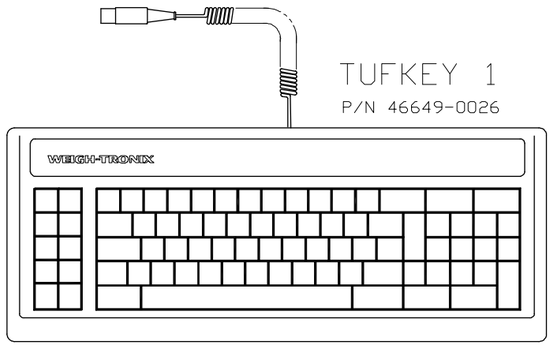
SW1 (1)OFF	(2)OFF	(3)ON
SETPOINT #	TB #	PIN #
25 (+)	46	1
25 (-)	46	2
26 (+)	46	3
26 (-)	46	4
27 (+)	46	5
27 (-)	46	6
28 (+)	46	7
28 (-)	46	8
29 (+)	47	1
29 (-)	47	2
30 (+)	47	3
30 (-)	47	4
31 (+)	47	5
31 (-)	47	6
32 (+)	47	7
32 (-)	47	8

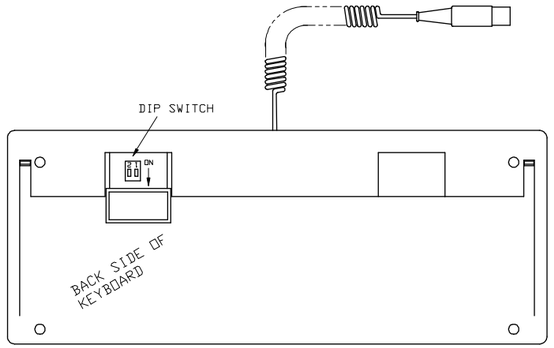
WI-130 WDAC REMOTE KEYBOARD OPTION





BAUD RATE	4-POSITION DIP SWITCH SETTINGS			
	1	2	3	4
300	ON	OFF	ON	OFF
1200	OFF	OFF	ON	OFF
9600	ON	OFF	OFF	OFF





KEYBOARD SPECIFICATIONS

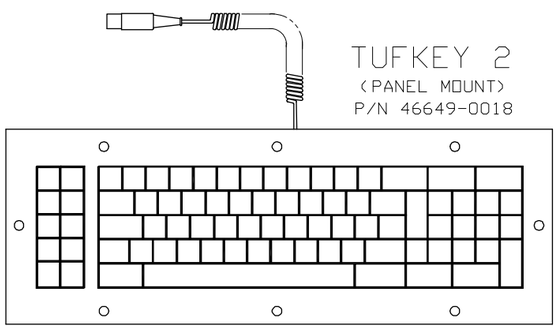
ENVIRONMENTAL: 32°f to 130°f (0°c to 55°c).

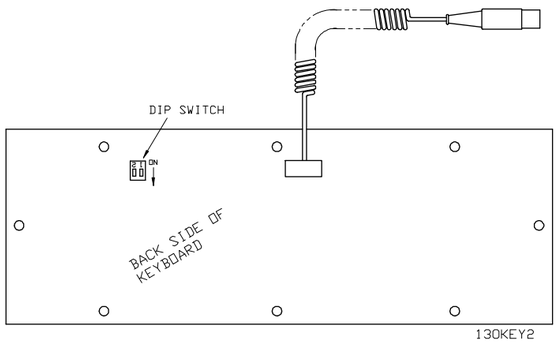
COMMUNICATION OUTPUT: **1** start bit, **8** data bits, **1** stop bit, TTL Asynchronous Serial , selectable baud rates

.

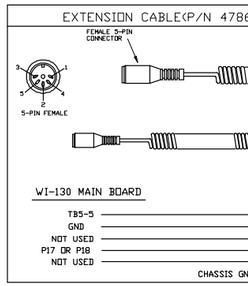
WEIGHT: 2 lb/.9 kg nominal .

BAUD RATE	2-POSITION DIP SWITCH SETTINGS	
	1	2
300	ON	ON
1200	ON	OFF
9600	OFF	ON

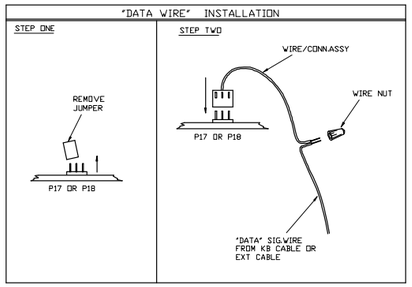


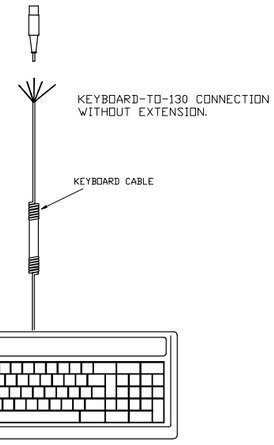


WI-130 WDAC-TO-KEYBOARD CABLE CONNECTIONS



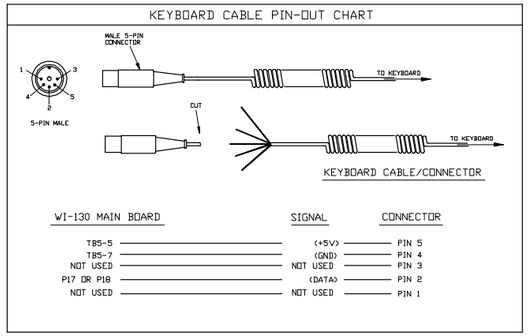
KEYBOARD-TO-130 CONNECTION USING EXTENSION.





KEYBOARD-TO-130 CONNECTION WITHOUT EXTENSION.

NOTE:
FOLLOWING KEYBOARD CONNECTION,YOU MUST PLACE THE APPROPRIATE SERIAL PORT IN KEYBOARD MODE.



KEYBOARD-TO WI130 CONNECTION

1. Remove the back panel from the WI-130 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. * Attach the data signal wire extension cable to the data signal wire using wire nut. (see "step 2"of data wire installation)
5. Choose "port 1"(p17) or "port 2"(p18), then remove jumper from pins at chosen port.(see "step 1" of data wire installation)

   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.
6. Replace removed jumper with the soldered end of data wire/conn.assy cable.(see "step 2" of data installation)
7. * Connect remaining wires as shown in above "pin-out chart".

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

NOTE: Refer to this illustration if you have *"Rev. B or C"* main P.C. board.

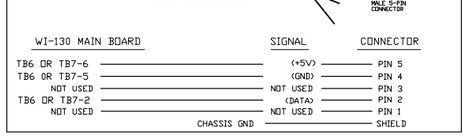
KEYBOARD-TO WI130 CONNECTION

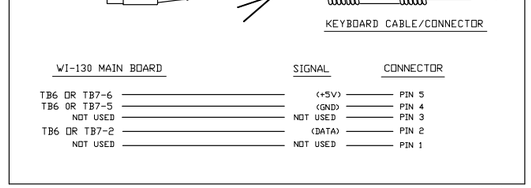
1. Remove the back panel from the WI-130 enclosure.
2. Insert the cut end of cable through water-tight connector at bottom of enclosure and pull cable into enclosure.
3. Strip covering back from cable to reveal five seperate wires.
4. Choose "port 1"(TB6) or "port 2"(TB7), then remove jumper from pins for chosen port.(see "step 1" of data installation)

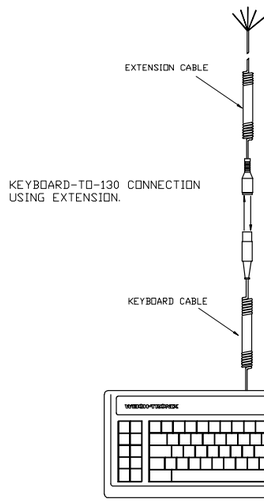
   NOTE: A port set in keyboard mode can still output to a printer or remote display. However, a designated keyboard port cannot accept input other than the keyboard.
5. * Connect wires at port 1 (TB6) or port 2 (TB7) as shown in pin-out chart (see below).
6. Insert jumper at P99 or P100 (see "step 2" in data chart).

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

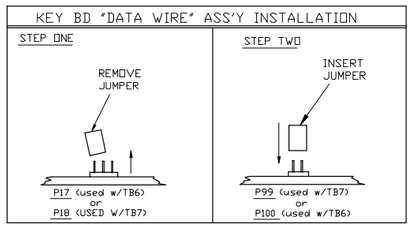
NOTE: Refer to this illustration if you have *"Rev. D"* or higher main P.C. board.



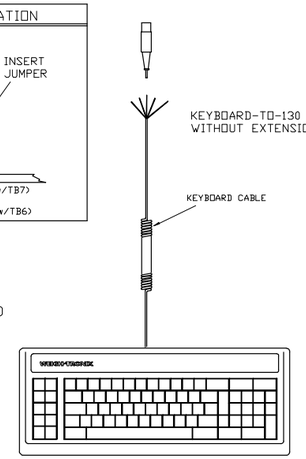




KEYBOARD-TO-130 CONNECTION USING EXTENSION.

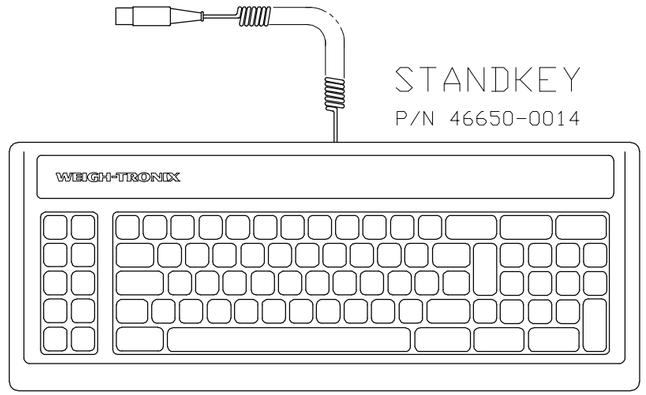


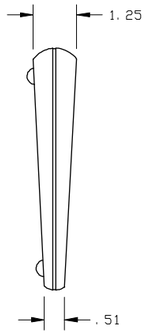
NOTE:
FOLLOWING KEYBOARD CONNECTION,YOU MUST PLACE THE APPROPRIATE SERIAL PORT IN KEYBOARD MODE.

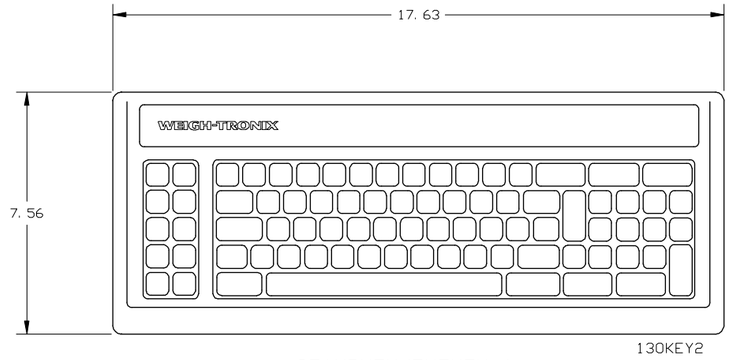


KEYBOARD-TO-130 CONNECTION WITHOUT EXTENSION.

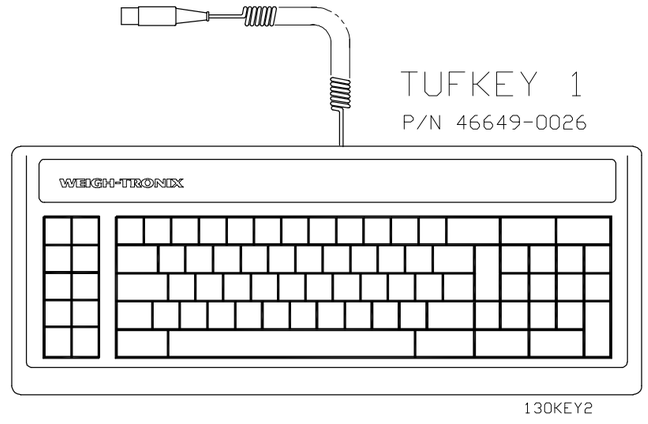
WI-130 WDAC-TO-KEYBOARD CABLE CONNECTIONS

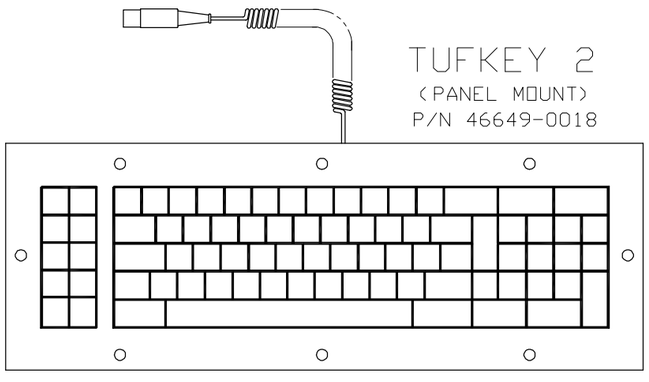


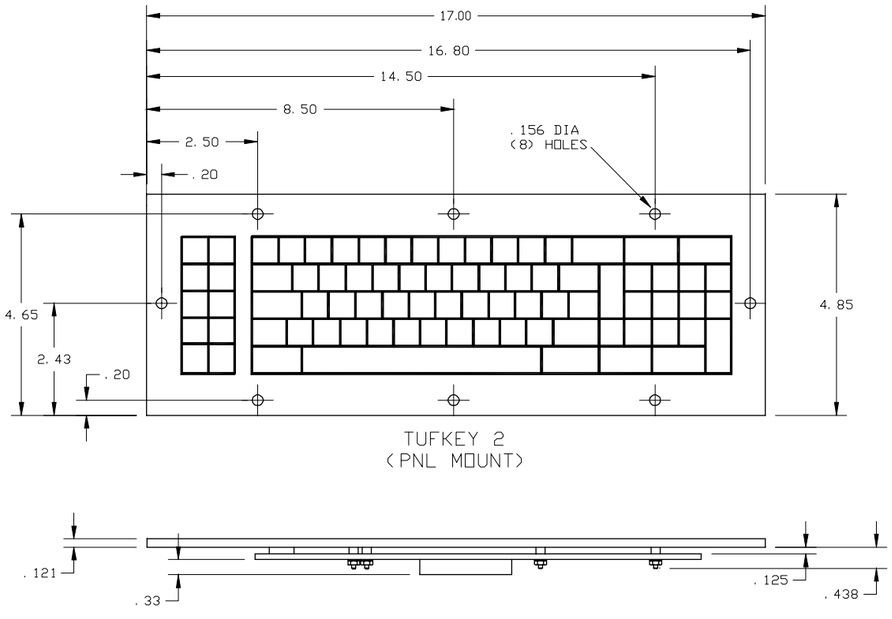




STANDKEY/TUFKEY 1

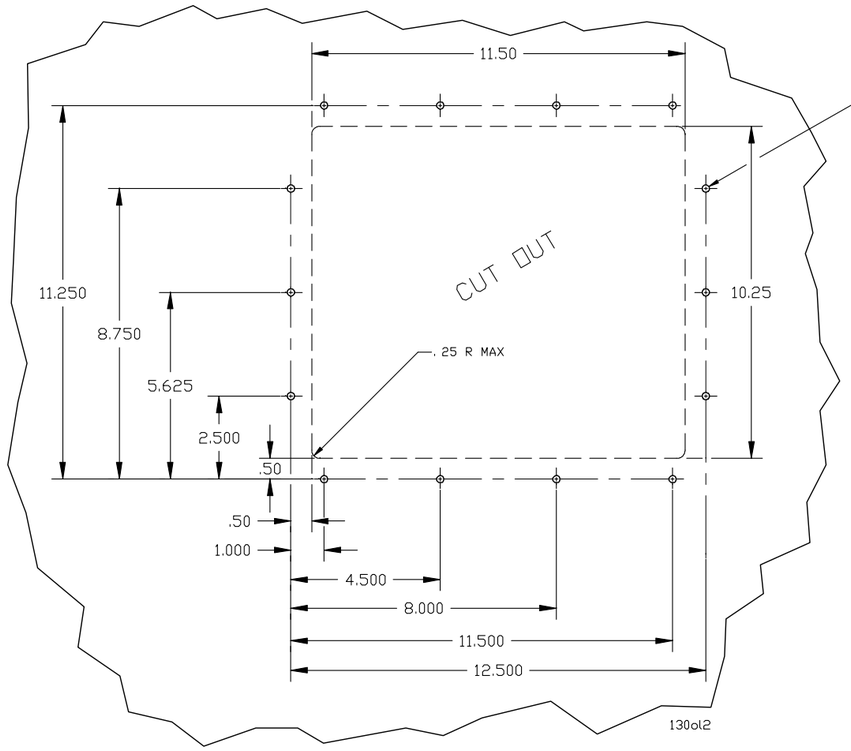




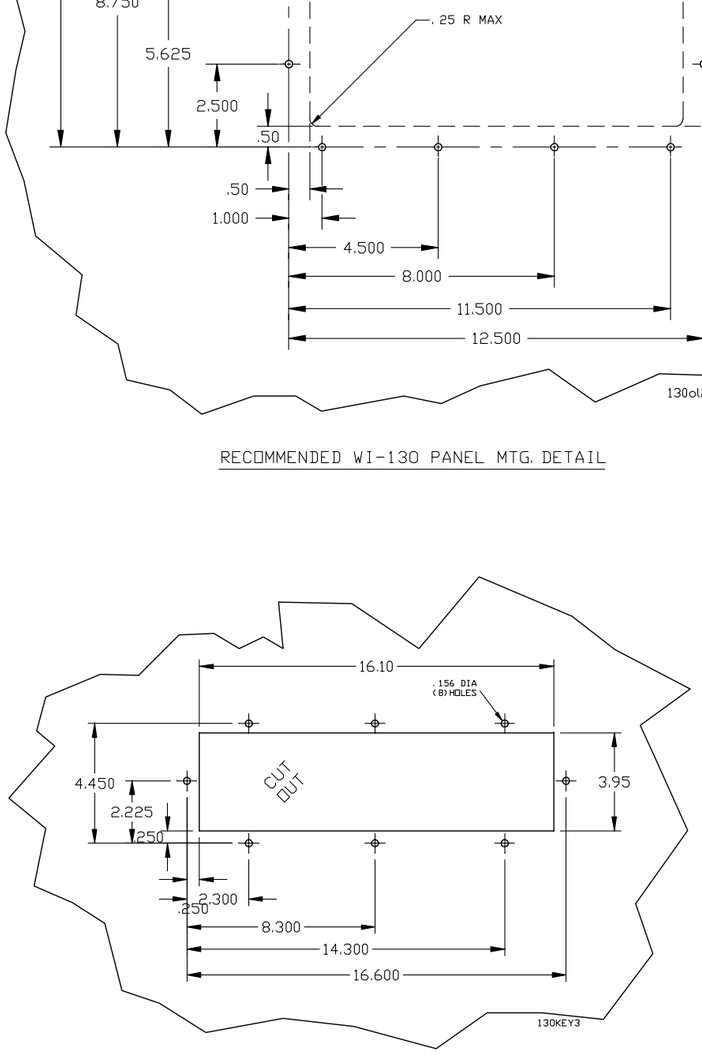


WI-130 WDAC

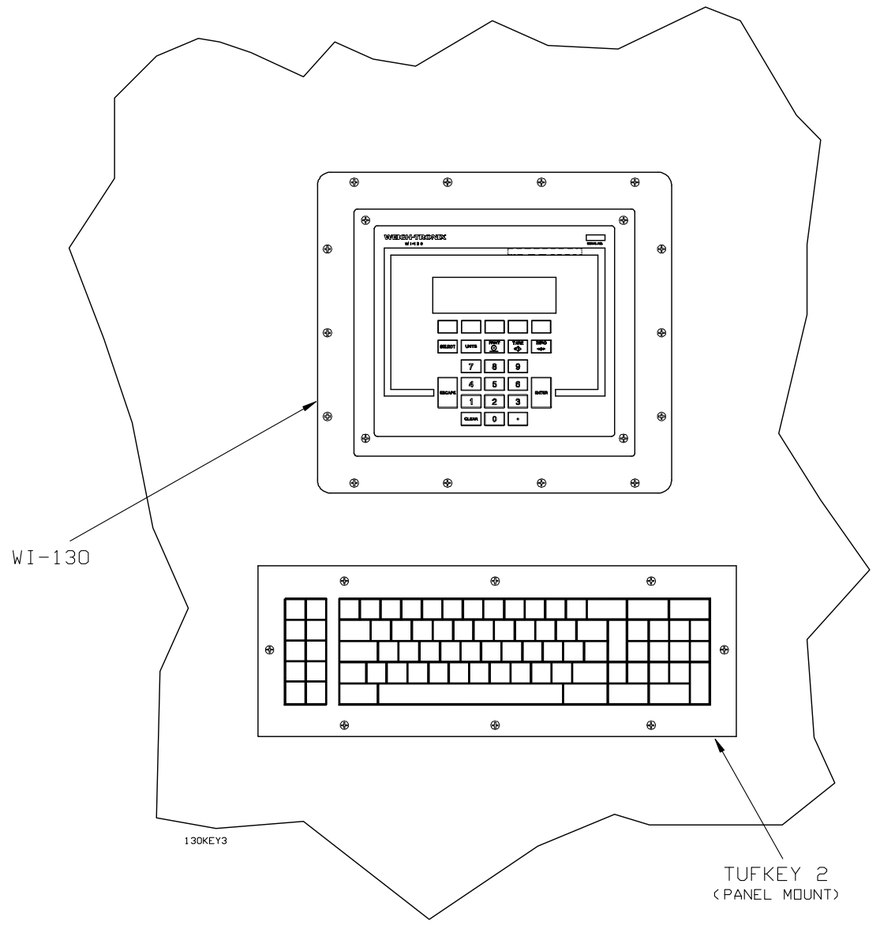
KEYBOARD/PANEL MOUNTING DETAIL



RECOMMENDED WI-130 PANEL MTG. DETAIL



RECOMMENDED PANEL MOUNT KEYPAD DETAIL

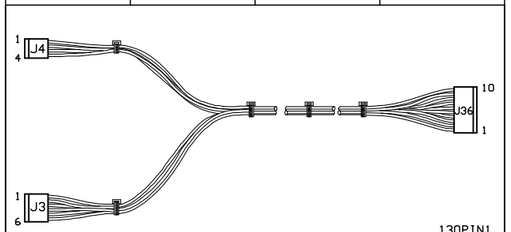


WI-130 WDAC

I/O CABLE IDENTIFICATION AND PIN-OUTS

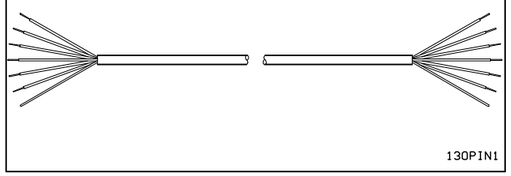
PWR SUPPLY TO MAIN BD CABLE ASSY P/N 47276-0016

W-T CABLE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
BROWN	J4-1 (PWR SUPP BD)	J36-1 (MAIN BD)	P/S INTERLOCK
YELLOW	J4-2 (PWR SUPP BD)	J36-4 (MAIN BD)	+5V
GREEN	J4-3 (PWR SUPP BD)	J36-5 (MAIN BD)	+5V
BLUE	J4-4 (PWR SUPP BD)	J36-6 (MAIN BD)	LOGIC GROUND
BLACK	J3-1 (PWR SUPP BD)	J36-10 (MAIN BD)	P/S INTERLOCK
RED	J3-2 (PWR SUPP BD)	J36-2 (MAIN BD)	+12V
ORANGE	J3-3 (PWR SUPP BD)	J36-3 (MAIN BD)	+12V
GRAY	J3-4 (PWR SUPP BD)	J36-8 (MAIN BD)	+5V X
WHITE	J3-5 (PWR SUPP BD)	J36-9 (MAIN BD)	-5V X
VIOLET	J3-6 (PWR SUPP BD)	J36-7 (MAIN BD)	LOGIC GROUND



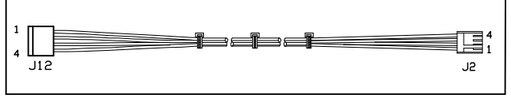
EXPANSION BD/WI-130 CABLE ASSY P/N 47388-0011

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
ORANGE	TB5 (1) MAIN BD	TB-35-OR-TB37 (1)	SERIAL CLOCK
YELLOW	TB5 (2) MAIN BD	TB-35-OR-TB37 (2)	SERIAL DATA
GREEN	TB5 (3) MAIN BD	TB-35-OR-TB37 (3)	$\overline{\text{INTERRUPT}}$
BLACK	TB5 (4) MAIN BD	TB-35-OR-TB37 (4)	LOGIC GROUND
RED	TB5 (5) MAIN BD	TB-35-OR-TB37 (5)	+5 VOLTS
BROWN	TB5 (6) MAIN BD	TB-35-OR-TB37 (6)	$\overline{\text{RESET}}$
SHIELD	CHASSIS	CHASSIS	SHIELD



MAIN BD / DISPLAY PWR CABLE ASSY P/N 47275-0017

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
BROWN	J12-1(MAIN BD)	J2-1 (DISPLAY)	+5V
RED	J12-2(MAIN BD)	J2-2 (DISPLAY)	GROUND
ORANGE	J12-3(MAIN BD)	J2-3 (DISPLAY)	+12V
YELLOW	J12-4(MAIN BD)	J2-4 (DISPLAY)	GROUND

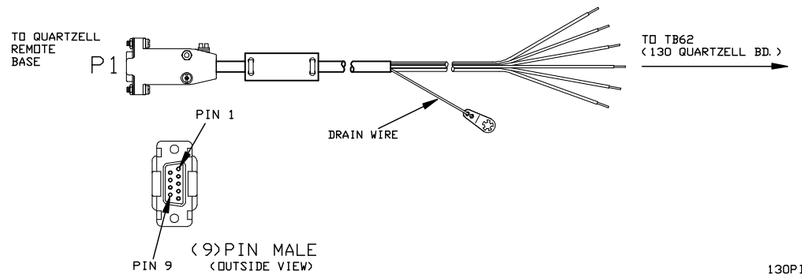


130PIN1

WI-130 TO QUARTZELL REMOTE BASE CABLE ASSY P/N 49385-LENGTH (USED w/ 3600 QDT BASES w/ NEW STYLE QUARTZELL)

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
GREEN	P1-7	TB62-3	XMT A
YELLOW	P1-3	TB62-1	XMT B
WHITE	P1-8	TB62-4	REC A
BLUE	P1-2	TB62-2	REC B
RED	P1-1	TB62-7	+7.5 V
BLACK	P1-5	TB62-5	GROUND
SHIELD	SHELL	GND STUD	SHIELD

SIGNAL NAMES ARE FROM INDICATOR

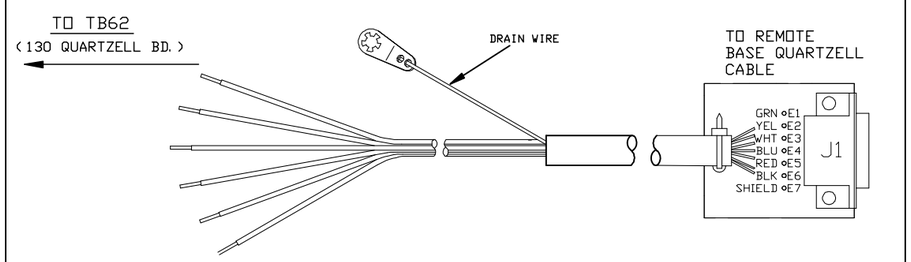


130PIN1

(USED w/ 3600 QDT BASES w/ OLD STYLE QUARTZELL)

WI-130 TO QUARTZELL REMOTE BASE CABLE ASSY P/N 47996-LENGTH

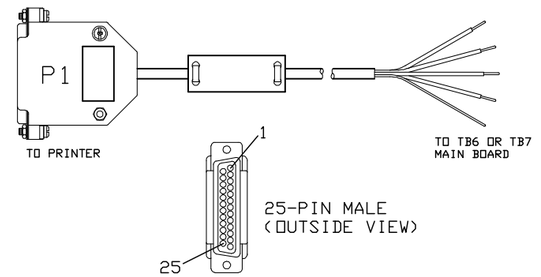
W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION TERMINATION	SIGNAL
GREEN	E1	TB62-3	XMT A
YELLOW	E2	TB62-1	XMT B
WHITE	E3	TB62-4	REC A
BLUE	E4	TB62-2	REC B
RED	E5	TB62-7	+7.5V
BLACK	E6	TB62-5	GROUND
SHIELD	E7	GND STUD	SHIELD



130PIN1

PRINTER TO WI-130 CABLE ASSY P/N 47670-0018

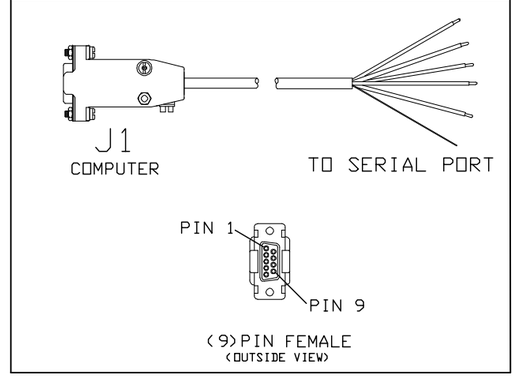
W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION MAIN BOARD	SIGNAL
SHIELD	P1-1	CHASSIS	CHASSIS GND
GRN	P1-2	TB6 OR TB7-2	RECEIVE
RED	P1-3	TB6 OR TB7-1	TRANSMIT
BLK	P1-7	TB6 OR TB7-5	SIGNAL GND
WHT	P1-11	TB6 OR TB7-4	CLEAR TO SEND
BLK	P1-4	P1-5	RTS/CTS



130PIN1

COMPUTER TO WI-130 CABLE ASSY P/N 47355-0010 AND/OR -0028

W-T WIRE COLOR	ORIGIN TERMINATION	DESTINATION MAIN BOARD	SIGNAL
RED	J1-2	TB6 OR TB7-1	TRANSMIT
GREEN	J1-3	TB6 OR TB7-2	RECEIVE
BLACK	J1-5	TB6 OR TB7-5	SIGNAL GRD
YELLOW	J1-8	TB6 OR TB7-3	RTS
BROWN	J1-7	TB6 OR TB7-4	CTS
	SHIELD	CHASSIS	CHASSIS



130PIN1

Avery Weigh-Tronix

Avery Weigh-Tronix USA
1000 Armstrong Dr.
Fairmont MN 56031 USA
Tel: 507-238-4461
Fax: 507-238-4195
Email: usinfo@awtxglobal.com
www.wtxweb.com

Avery Weigh-Tronix UK
Foundry Lane,
Smethwick, West Midlands,
England B66 2LP
Tel: +44 (0) 8453 66 77 88
Fax: +44 (0)121 224 8183
Email: info@awtxglobal.com
www.averyweigh-tronix.com

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