



WI-127 Indicator User's Manual

UNITED STATES

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADA

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur le brouillage radioelectrique que edicte par le ministere des Communications du Canada.

EUROPEAN COUNTRIES

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which the user may be required to take adequate measures.



CAUTION

Risk of electrical shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

Weigh-Tronix reserves the right to change specifications at any time.

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WI-127 Specifications*

Power requirements:

115 Volts AC, +10% to -15% @ 0.3Amp maximum 230 Volts AC, +10% to -15% @ 0.15 AMP maximum 50/60 Hz

Excitation: 10 Volts DC

Supports up to twelve 350-ohm weight sensors

Operational keys:

Five yellow standard keys: Zero, Tare, Print, Units, Select

Three function keys: F1, F2, F3 Numeric keys: 0-9

Operational annunciators:

Gross, Tare, Net, Print, Zero, Motion Under, Accept, Over, Cutoff, ID, Three units of measure

Display: Eight digit, seven segment, 0. 8-inch high LED

Display rate: Selectable (1, 2, 5, 10)

Analog to digital conversion rate: 60 times per second

Unit of measure:

Three, independently programmable:

Pounds, kilograms, grams, ounces, ton, tonne, custom, Off

Capacity selections:

999,999 with decimal located from zero to five places

Incremental selections:

Multiples and sub-multiples of 1, 2, 5

Programmable selections:

Zero range, motion detection, automatic zero tracking, five-point linearization.

Time and date/RAM:

Battery backed up real time clock and RAM are standard

Internal resolution: 6,291,456 counts per mV/V per sec.

Harmonizer[™] digital filtering:

Fully programmable to ignore noise and vibration

Standard inputs:

Seven configurable logic level inputs for functions such as PB tare, print, zero, units, select, gross and net.

Standard outputs:

Three outputs, open collector design Relay power supply, 24 VDC at 150mA Bi-directional serial port (RS-232 or RS-422/485 or 20mA current loop)

Serial Command Inputs

Programmable serial response to ASCII character input

Self diagnostics:

Display, keys, inputs, outputs, serial port, A to D converter, loadcell output display, voltages

Circuitry protection: RFI, EMI, and ESD protection

Options:

Two additional serial ports BCD parallel 10 cutoffs Analog output 0-5, 0-10 volts 1-5, 4-20, 10-50 mA

Operating temperature:

-40 to 140° F (-40 to 60° C) 100% relative humidity including washdown

Enclosure: NEMA 4X stainless steel enclosure

Dimensions:

12" W x 8" H x 4" D (without mounting bracket) 12.3" W x 11.0" H x 5.3" D (with mounting bracket)

Weight: 12.5 lb, 5.7 kg

Agencies:

NTEP Class III/IIIL:10,000d, COC #96-140.A1 Consumer and Corporate Affairs, Canada, #AM-5167 UL/CUL/CSA FCC Class A

Introduction

The WI-127 is a versatile, full-featured indicator housed in a stainless steel enclosure. Its user interface includes an 8-digit, 7-segment LED display, fourteen LED annunciators, and 24 keys.

This set of instructions is divided into the following sections:

- Introduction
- Installation
- Operations Mode
- Front Panel
- Gross Weighing
- Net Weighing
- Using Cutoff Registers
- Checkweighing
- Customizing the Indicator
- Serial Communication
- Error Messages
- Indicator Diagnostics
- In-Motion Option

Installation



The socket-outlet must be installed near the equipment and easily accessible. Connect the scale interface cable and any other peripheral equipment to the indicator according to the instructions in the Service Manual.

Power up the unit by plugging it into the appropriate AC socket-outlet. See note at left. The unit will power up in operations mode.

Operations Mode

Operations mode contains all normal weighing operations. In this mode you can view or set the following parameters:

- push-button tare
- quick keypad tare entry
- one to ten tare registers (numbered 1,2,3,4,5,6,7,8,9,0)
- cutoff registers
- target, over and under values
- identification number
- time
- date

Front Panel

The WI-127's front panel consists of 24 keys and fourteen annunciators.



Figure 1 WI-127 Front Panel

Keys	The WI-12	The WI-127's keys are divided into four primary groups:		
Standard Scale Keys	Standard weighing a UNITS.	Standard Scale Keys These yellow keys are common to a majority of weighing applications and include SELECT, TARE, PRINT, ZERO, and UNITS.		
	SELECT	Used to switch between the gross, tare, and net display modes SELECT can also be used to accept a current selection and return to weigh mode from within any menu.		
	TARE	Enters a pushbutton tare in the display mode. Can be configured to accept values through the numeric keypad.		
	PRINT	Used to initiate manual data transmission.		
	ZERO	Zeros the scale in the display mode. Also clears values in numeric entry.		
	UNITS	Switches the units of measure in the display mode. Up to three units of measure are selectable.		

Function Keys	Function Keys These oval keys along the right side of the display face are configurable and are labeled F1, F2, and F3. The default configurations for these keys are:		
Operation of these keys	F1 Acc	cesses tare registers (see page 5)	
installed in the WI-127. (stan-	F2 Vie	ws and edits ID (see page 9)	
dard, in-motion)	F3 Acc	cesses cutoff registers (see page 7)	
Keypad Keys	Keypad Ke entry. The k (.) and are	eys These are the twelve square keys which support numeric keyboard keys are labelled 0-9, plus/minus (+/-), and decimal point located near the center of the display face.	
Directional Keys	Directional Keys The directional keys are used to navigate through the WI-127's menus. These keys are labeled ESCAPE (up), ENTER (down (left), and MENU (right) and are positioned in a compass-like cluster of display face. These directional keys are denoted by the small transparance arrows located next to them. ESCAPE, ENTER, and ← also support rentry.		
	ESCAPE	Exits a menu parameter without saving any changes.	
	ENTER	Used to end digit entry, accept a change made, or select an item from a function list.	
	←	Backspaces (deletes the last digit or punctuation mark entered) while in numeric entry and moves left within a menu.	
	MENU	Accesses menus and moves right within a menu.	

Annunciators

The WI-127 has fourteen annunciators.

Gross	Illuminates when indicator is in gross weighing mode.			
Tare	Illuminates when viewing tare values in the various tare registers.			
Net	Illuminates whe	Illuminates when indicator is in net weighing mode.		
lb, kg, other	Illuminates the active unit of measure in weighing mode.			
Print	Illuminates when the indicator is transmitting data.			
Zero	Illuminates when the scale is within the configured center of zero.			
Motion	Illuminates when the scale detects motion (within configured motion window).			
Under, Accept, Ov	ver, Cutoff, ID	Specific application annunciators.		

Gross Weighing



The socket-outlet must be installed near the equipment and easily accessible.

To perform gross weighing operations, follow these steps:

Power up the indicator. Indicator powers up in gross weighing mode.
 Verify the scale is empty and zero the scale by pressing the ZERO key. Zero weight is displayed and the zero annunciator illuminates.
 Select unit of measure by pressing the UNITS button. The units annunciator will illuminate next to the chosen unit of measure.

4. Place weight on the scale.

Gross weight is displayed.

Net Weighing

For net weighing operations a tare needs to be entered. A tare can be entered by three methods: using the pushbutton tare, using quick keypad tare entry, or selecting a tare from the tare register (a memory bank of up to ten tares).

Pushbutton Tare	1.	With the scale empty and the indicator in gross weighing mode, zero the scale by pressing the ZERO key.	Zero weight is displayed and the zero annunciator illuminates.
	2.	Place the weight to be tared on the scale.	The weight of the object is displayed.
	3.	Press the TARE key on the indicator.	The weight is tared, the display reads zero and the net annunciator illumi- nates.
	4.	Add more weight to the scale.	Net weight is displayed.
You may view the current or active tare value at any time	5.	View the gross weight by pressing the SELECT button	Gross weight is displayed and the gross annunciator illuminates.
during a weighing process. From gross or net weighing mode, press SELECT until the tare annunciator illuminates. If	6.	Press the SELECT key again to see the tare value	Tare value is displayed and the tare annunciator illuminates.
a tare value is in use, it will be displayed.	7.	Press the SELECT key again to see the net value.	Net weight is displayed and the net annunciator illuminates.

Quick Keypad Tare Entry

- From display mode, enter a tare value using the numeric keys 0-9...
- 2. Push TARE...

Entered value is displayed.

Tare value is accepted, net weight is displayed, and the net annunciator illuminates.

Selecting a Tare Register

Tare values must be entered in the tare registers before they can be used in weighing operations. Refer to the section "Entering and/or Changing Values in Tare Registers" on the following page.

There are two ways to select a tare register: #1:

- a. From display mode, press **F1**. Tare mode is displayed and the tare annunciator illuminates.
- b. Scroll through the tare registers by pressing the MENU (forward) and ← (backward) keys, or by repeatedly pressing F1. The tare registers are in the order listed here: General register → Register #1 → #2 → #3 → #4 → #5 → #6 → #7 → #8 → #9 → #0. Stop when the register you wish to use is displayed. (For this example, tare register #3 will be used.)

3 0 is displayed, indicating that register #3 has no value entered. (Your indicator may have a value in register #3.)

- c. Press ENTER to select the displayed tare register...
- or
- #2:
- a. From display mode, key in the number of the tare register you wish to use. . .

b. Press **F1**...

Tare register number is displayed.

Indicator returns to display mode.

That tare register is selected and indicator returns to weigh mode.

Entering and/or Changing Values in	1. F	rom display mode, press F1 .	Tare mode is displayed and the tare annunciator illuminates.
To exit back to normal weighing mode, press the SELECT key and save changes as needed by pressing ENTER with SAVE? displayed.	2. S b a 76 3. Y v	Scroll through the tare registers by pressing the MENU (forward) and \leftarrow (backward) keys, or by epeatedly pressing F1 . You can enter/change a tare ralue in a register in two ways:	
	3A. K V n fc E or	Key in a tare value: With the desired register number displayed, key in 155 for this example, then press ENTER	The value is accepted and displayed in net mode.
	3B. U V d	Jse the pushbutton tare: Vith the desired register number lisplayed and the tare weight on he scale, press TARE .	The register number and new tare weight are displayed and the tare annunciator illuminates.
	4. F n	Press MENU to proceed to the next tare register.	
	5. P a re	Press ENTER or SELECT to accept the displayed tare and eturn to the display mode.	
Clearing the Active	There A. R	e are two ways to remove the curre Remove all weight from the scale	nt or active tare weight.
Tare	а	and press TARE	Tare register is cleared and display returns to gross mode.
	B. F p	From any weight display mode, press 0 , then press TARE	Tare is cleared and display returns to gross mode.
Net Weighing Operation	1. A tł p	After a tare is established, place he indicator in net mode by pressing the SELECT key until	Net annunciator illuminates. Zero weight will be displayed with the container on the scale.
	2. F tł	Place material to be weighed in he tared container on the scale.	Net weight of material is displayed.

Using Cutoff Registers

cutoff values

	The standard WI-127 includes up to thr card raises this number to ten.	ee cutoffs. Adding the optional cutoff
	When activated (weight on the scale is registers), these cutoffs are all on at the vate as soon as the weight on the scale register.	less than the weight in the cutoff e same time. Each cutoff will deacti- e matches the value in each cutoff
	Cutoffs may be positive or negative valu	les.
Viewing outoffe	Cutoff registers may be viewed by two r	nethods:
viewing cutoris	Method A: 1. Press the F3 key	1 xx is displayed. The number 1 stands for cutoff register #1 and xx is the current value in register 1.
	 Continue pressing F3 or MENU to scroll forward or ← to scroll backward through the remaining cutoff registers. 	
Press ENTER at any time to exit the cutoff register menu.	Method B: If you know which cutoff register you wish to view, press the number of that register, then press F3 . That particular cutoff register is displayed. You may scroll through the remaining registers by pressing the F3 key consecutively.	
Entering cutoff values	 To enter a cutoff value, Press F3 until the cutoff register you wish to set is displayed Enter the cutoff value in one of two ways: 	<i>3 0</i> (for example).
Press ENTER at any time to exit the cutoff register menu.	 2A. Key in the correct cutoff value using the keypad or 2B. With active weight on the scale, press TARE 	<i>xx</i> is displayed.The active weight is set as the cutoff value.
	3. Press MENU or F3 to accept the value and move to the next cutoff register.	
Deactivating/clearing	To deactivate or clear a cutoff value, set the value to zero.	

Checkweighing

Setting Target and Over/Under Values	The WI-127 is configured to perform checkweighing functions. The checkweighing parameters are accessed through the Operations Menu shown in Figure 2.		
	Th an en	e target value must be considered wh d under. Depending on the target val tered as either actual weight values o	nen determining values to enter for over ues, the over/under values can be or as tolerance values.
	If the target value is zero, you may enter over and under values as actual weight. For example, if the target = 0, over might = 100 lbs, and under might = 50 lbs. This means that any weight between 50 lbs and 100 lbs is acceptable. (Note: The <i>ACCEPT</i> annunciator does not illuminate when target = 0.)		
	lf tl be un ace	he target value is a value other than a set as tolerances. For example, if t a der might = -10. This means that an ceptable.	zero, the over and under values must arget = 100, over might = 10, and by weight between 90 and 110 lbs is
	1.	Press MENU until	OVEr is displayed.
	2.	Press ENTER	The over tolerance is displayed and the <i>OVER</i> annunciator illuminates.
	3.	Using the keypad, enter the new over tolerance value	New value is displayed.
	4.	Press ENTER	<i>OVEr</i> is displayed.
	5.	Press MENU	UndEr is displayed.
	6.	Press ENTER	The under tolerance is displayed and the UNDER annunciator illuminates.
	7.	Enter the new under tolerance value	New value is displayed.
	8.	Press ENTER	UndEr is displayed.
	9.	Press MENU	tArgEt is displayed.
	10.	. Press ENTER	The target value is displayed and the ACCEPT annunciator illuminates.
	11.	. Enter the new target value	New value is displayed.
	12.	Press ENTER	tArgEt is redisplayed.
	13	. After entering all new values, press SELECT	Indicator returns to display mode.

Checkweighing Operation

- 1. With the indicator in display mode, verify the scale is empty and zero the scale by pressing the **ZERO** key. . .
- 2. Select the unit of measure by pressing the **UNITS** button...
- 3. Place weight on the scale...

Zero weight is displayed and the zero annunciator illuminates.

The units annunciator will illuminate next to the chosen unit of measure.

Weight will be displayed and the UNDER, ACCEPT or OVER annunciator will illuminate.

Customizing the Indicator

The ID number may be up to 8 digits in length. It may include any combina-Viewing and Editing the tion of the numbers 0 through 9, dashes, and one decimal point. **ID** Number Viewing the ID number From display mode, press **F2**... The current ID number is displayed. 1. 2. After viewing, press ESCAPE... Indicator returns to display mode. Editing the ID number From display mode, press F2... The current ID number is displayed. 1. 2. Enter your new ID number using the keypad. If you make a mistake entering the new ID number, use the ← key to backspace and delete the incorrect digits. . . New ID number is displayed. 3. With your new ID number displayed, press ENTER... The new ID number is saved and the ID number is not included in indicator returns to display mode. the default printout. To customize your printout to include this 4. You may check the new ID number item, refer to your Service by pressing **F2**... The new ID number is displayed. Manual.

Viewing and Setting Time	1. 2.	From display mode, press MENU once Press ENTER	<i>Hour</i> is displayed. The current time is displayed. In the 12-hour clock configuration
To exit back to normal weighing mode, press the SELECT key and save changes as needed by pressing ENTER with SAVE2 displayed	3.	Press UNITS to togale between	time is displayed as hours, minutes, and \boldsymbol{A} for A.M. and \boldsymbol{P} for P.M. (e.g. $\boldsymbol{09}$ $\boldsymbol{40}$ \boldsymbol{A}). In the 24-hour clock configuration time is displayed as hours, minutes, and seconds (e.g. $\boldsymbol{09}$ $\boldsymbol{40}$ $\boldsymbol{30}$).
		the 12 hour and 24 hour clocks.	
If you enter an incorrect digit, press ← to clear the display one digit at a time.	4.	 To set the 12 hour clock: a. Key in the time as hh mm. b. Press the +/- key to toggle between A.M. & P.M. c. After the correct time is entered, press ENTER to accept the new time. 	
		 To set the 24 hour clock: a. Key in time as hh mm ss. b. After the correct time is entered, press ENTER to accept the new time. 	
Time and date are not included in the default printout. To	5.	Press ENTER to view the new time	The new time is displayed.
customize your printout to include these items, refer to your Service Manual.	6.	Press ESCAPE to return to display mode	Indicator returns to display mode.

Viewing and Setting the Date

If you enter an incorrect digit, press ← to clear the display one digit at a time.

- 1. From display mode, press **MENU** twice. . .
- 2. Press ENTER...
- 3. To change the date, key in the new date using the numeric keypad (the entire date must be entered), then press **ENTER**...
- Press ENTER again to view the new date
 or
 Press ESCAPE to return to display mode. . .

dAY is displayed.

The date is displayed as month-dayyear.

The new date is accepted and *dAY* is redisplayed.

Indicator returns to display mode.

Operations Menu

Your WI-127 is configured to display and edit time, date, over, under and target values in the Operations Menu. These parameters can be viewed and changed if allowed. This manual assumes the unit is configured to allow full access to these functions.

To enter the Operations Menu press **MENU**. Use the directional keys to maneuver through this menu:



Serial Communication

The WI-127 has a bi-directional serial port with RS-232, RS-485/422 or 20 mA current loop communication capability. Your unit may be customized to print according to your needs. An example of the default print layout is shown below:



What is transmitted is a label for the displayed weight (G for gross, T for tare, N for net), the tare register number (tare weights only), the actual weight, and the unit of measure.

Error Messages

The following are displays you may see if problems occur or if invalid opera- tions are attempted with your WI-127:				
Display	Description			
O. LoAd	Overrange weight.			
	Underrange weight.			
	Recovering from lock-up or out of range condition.			
Loc' up	A-D converter is not functioning.			
L.C. Error	A-D converter subjected to an input signal beyond ± 5.00000 mV/			
Can't	The unit cannot perform a function. Displayed only while key is held down.			
Flashing_	Corrupted data in the reset menus. See the <i>Service Manual</i> . (* = RESET, SETUP, or CAL)			
Sealed	Displayed while a key is pressed when attempting to modify a sealed selection without edit privileges.			
Auto. 0	Displayed while waiting for a stable, valid weight to use as a zero reference on power-up.			
Lo. Volt	Displayed when input voltage to excitation regulator drops below 10.5 VDC. Will clear when input voltage rises above 11.5 VDC.			
1 Busy	Displayed when the ready/busy handshake has exceeded its time out limit. Default is 2 seconds. This can also apply to optional 2nd and 3rd serial ports.			

Indicator Diagnostics

Test Mode

The test mode is used to test various functions of the WI-127. The test menu is shown in Figure 3.

To enter the test menu:

1.	Press and hold ESCAPE for two seconds	About is displayed.
2.	Press MENU two times	<i>tESt</i> is displayed.
3.	Press ENTER	diSPLAY is displayed.

Maneuver through the parameters using the directional keys:

 $\begin{array}{rcl} \textbf{ESCAPE} &= & up \\ \textbf{ENTER} &= & down \\ \boldsymbol{\leftarrow} &= & left \\ \textbf{MENU} &= & right \end{array}$

You may exit to display mode at any time by pressing **SELECT**.



Figure 3 Test Menu

Below are the explanations for the items you see in the test menu.

Display —	Performs a test of the display segments and LEDs. With <i>diSPLAy</i> displayed, press ENTER once to initiate an automatic test. Press ENTER again to stop the auto- matic test, or press ← and MENU consecutively to step through the display test manually. Press ESCAPE to exit the display test.
Buttons—	Performs a test of the keypad. With <i>buttonS</i> displayed, press ENTER and the word <i>nOnE</i> will appear on the screen. Press any key except MENU to check for proper key functioning. The title of each key will appear on the display as it is pressed. After testing the buttons, press MENU .
A to D —	Performs A-to-D test to check the raw offset and gain of the electronics. With <i>A to d</i> displayed, press ENTER to view the A-to-D value. The span is 20,000 counts per millivolt per volt. Press ESCAPE to return to <i>A to d</i> .

Loadcell —	Displays the factory normalized loadcell input. With <i>LOAdCELL</i> displayed, press ENTER to view the counts. Press UNITS to toggle between the counts display mode and mV/V display mode. Span is 200,000 counts per millivolt per volt. Press ESCAPE to return to <i>LOAdCELL</i> .
Serial —	Allows testing of the internal serial ports. With <i>SEriAL</i> displayed, press ENTER to select the port to test. Port 1 is always the internal serial port. (Port 2 and 3 are only offered if extra serial ports are installed.) Press ENTER again to view ready/busy. Then press MENU to view loop/ no loop. Press ESCAPE to return to <i>SEriAL</i> .
Outputs —	Allows testing of the outputs. With <i>OutPutS</i> displayed, press ENTER twice to cycle through the available outputs in sequential order. Press ESCAPE— <i>SEqUEnCE</i> is displayed. Press MENU to view the available outputs. Press ENTER to view the status of the outputs. The outputs are numbered left to right, starting with one. A "1" indicates the output is activated; a "0" indicates the output is deactivated. To change the status of the output you wish to change. Toggle the status by pressing ENTER. If the optional I/O board is installed, an additional eight outputs are available under <i>Out. 9-16.</i> Press ESCAPE to return to <i>OutPutS</i> .
Inputs —	Allows testing of the inputs. With <i>InPutS</i> displayed, press ENTER— <i>StAndArd</i> is displayed. Press ENTER again to view the status of each input. The inputs are ordered 1-8 from left to right. A "1" indicates the input is activated; a "0" indicates the input is deactivated. If the optional I/O board is installed, an additional eight inputs are available under <i>OPtion</i> . Press ESCAPE twice to return to <i>InPutS</i> .
Voltages —	Allows testing of the power supply voltages. With <i>VoltAGES</i> displayed, press ENTER to test the unregulated loadcell excitation power supply voltage (13 volts). Press MENU repeatedly to scroll through the remaining power voltages: the -5 volt excitation voltage (-5 volts), the unregulated 5 volt logic supply voltage (10 volts), and the relay supply voltage (24 volts). Press ESCAPE to return to <i>VoltAGES</i> .

In-Motion Option

The WI-127 has an optional software package for use with in-motion weighing
applications such as conveyor and monorail scales. This short supplement
details the few differences the user will notice in the operation of the WI-127
with this software installed and functioning.

Display Differences

While weight information is being calculated on an object passing across the scale, the indicator will show middle dashes.

Once the weight has been acquired it is displayed for seven seconds. The ID annunciator lights up while the weight is displayed. This is a change in function for the ID annunciator.

If an error occurs while acquiring a weight the display will show *ERROR* for seven seconds.

Function Key Differences

The **F1** key is a **TARE** key. The **F2** key accesses the Over, Under, and Target setup.

The F3 key is for entering cutoff values.

Menu Differences

The Operation Menu in Figure 2 of this manual changes as follows and now looks like Figure 4:

ID was added.

Over, Under, and Target, were moved to the F2 key.



Figure 4 In-motion operation menu

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