

# WEIGH-TRONIX



## WPI-135 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.



## **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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# Specifications

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

# Introduction

## About This Manual

This manual covers the information you need to understand the operation of your WPI-135 (**W**eight **P**rocess Indicator) instrument.

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.

## WPI-135 Process Indicator

The WPI-135 is a stand alone or network capable weight indicator and process controller. Built into the WPI-135 are the following standard features:

- 4 serial ports
- Time
- Date
- Stainless steel enclosure
- Large graphic display

The WPI-135 front panel is shown in Figure 1. The front panel includes the following:

- 32 x 128 dot, vacuum fluorescent, dot addressable display
- Five variable function soft keys
- Numeric keypad
- SELECT key
- UNITS key
- PRINT key
- TARE key
- ZERO key
- CE (Clear) key
- ESC (Escape) key
- ENTER key
- Decimal point key

## Main Display



120.00 LB GROSS

| ITEM | QTY | UNIT | PRICE  | TOTAL  |
|------|-----|------|--------|--------|
| 1000 | 1   | EA   | 120.00 | 120.00 |

TEST BASIC TEXT FOR MI-130 DISPL

: : 0000

REMI WHITE REMI WHITE REMI WHITE REMI WHITE

Your system will be configured for your particular needs. The screen you see will depend on what weighing application you are performing.

## Front Panel Keys

### Hard Keys

The keys on the front panel of the WPI-135 are of two types, hard keys and soft keys. Hard keys are labeled directly and soft keys are labeled F1-F5. If a soft key has a function, its label appears at the bottom the the display. Soft keys function differently at different times and 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. (lb, kg, oz, etc.)



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.



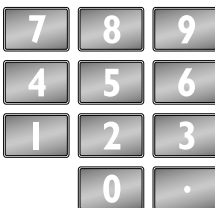
Press the **ESCAPE** key to back out of menus or cancel a numeric entry without accepting the value.



Press the **CLEAR** key 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 mode of operations change or as the program for your particular setup changes.

There 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.

Weighing Operation

The following instructions step you through a typical weighing operation:

1. Power up the indicator. If the display mode is not the one you want to use, repeatedly press the **SELECT** key until the display value you want (gross, net, etc.) is displayed. . .

Your indicator may be configured with only one display value. Selecting other display values may not be an option with your particular setup.
2. Zero the scale by pressing the **ZERO** key. . .

Display should read zero weight and the center of zero symbol is displayed.
3. Place object to be weighed on the scale. . .

An **M** appears on the display during scale motion and the weight is displayed.

Pushbutton Tare Operation

To perform a tare operation with the **TARE** key, follow these instructions:

1. Zero the scale by pressing the **ZERO** key. . .

Display shows zero weight.
2. Place container to be tared on the scale and press the **TARE** key. . .

The display changes to a **NET** display and shows zero weight.
3. Place material to be weighed on the scale. . .

Net weight is displayed.



## Keypad Tare Entry

For entry of a known tare weight follow these instructions:

1. With the indicator showing gross weight, key in the tare weight using the numeric keys. . .  

A tare entry display shows the weight that you key in.
2. Press **ENTER** to accept this tare entry. . .  

The net weight is displayed in net mode.

## Specialized Operations

Due to the unlimited variety of applications available for the WPI-135, it is not practical to describe all the possible specialized operations in this manual. Each application program will be unique.

Specialized operations will be set up to offer you soft key choices specific to the application and will guide you with messages on the display.

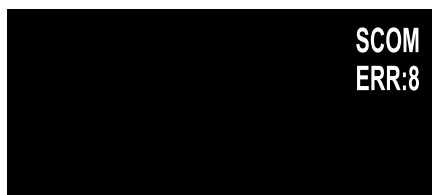
## Accessing Software Version

The time may come when you are asked by a service technician what the software version of your software is. There is a series of key strokes which will bring that number up on the screen. Below are the instructions for accessing this information.

1. Press and hold the **ESCAPE** key until the WPI-135 beeps.
2. Within five seconds, key in the number 111 and press **ENTER**.
3. Press the soft key labeled **VIEW**.
4. Press the soft key labeled **VERS**. The software version will appear on the display.

# SensorComm™ Error Messages

If your WPI-135 is connected to a SensorComm™ digital j-box, you may see the error messages listed in the table below. Also listed is a description of the error and possible causes. These may help with servicing. Error messages will appear in the upper right corner of the display window as shown in the example of error message #8 shown below.



**All error messages below which mention components are referring to components within the SensorComm product.**

| Error # | Error                                | Description of Error                                                                     | Possible Cause                                                                                       |
|---------|--------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1       | Communications error                 | SensorComm not responding                                                                | -Cable<br>-SensorComm hardware failure<br>-WPI-135 hardware failure                                  |
| 2       | Power fault                          | +Vin, +EXC, or -EXC has fallen out of tolerance. Voltage $\pm 5\%$ .                     | -Power supply failure<br>-Cable                                                                      |
| 3       | A to D overrange                     | More than +5mV/V has been applied to the A to D converter                                | -Cable<br>-Weight sensor failure                                                                     |
| 4       | A to D underrange                    | Less than -5mV/V has been applied to the A to D converter                                | -Cable<br>-Weight sensor failure                                                                     |
| 5       | A to D Initialization failure        | A to D converter not responding                                                          | -Component failure<br>-Power supply problems                                                         |
| 6       | Weight sensor overrange              | The weight sensor output has exceeded the configured amount.                             | -Abuse of scale<br>-Weight sensor failure                                                            |
| 7       | Weight sensor deadload shift warning | The output of the weight sensor is greater than $\pm 1\%$ of capacity since              | -Gauging problem on the weight sensor<br>-Mechanical issue with the scale calibration                |
| 8       | Weight sensor deadload shift error   | The output of the weight sensor has increased more than $\pm 2.5\%$ of                   | -Gauging problem on the weight sensor<br>-Mechanical issue with the scale capacity since calibration |
| 9       | Weight sensor stability              | The output of 1 or more weight sensor is not in the same range as the rest of the scale. | -Mechanical issue with the scale<br>-Weight sensor problem                                           |



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