

# Tech

T A L K

A TECHNICAL PRODUCT PUBLICATION

## IQplus™ 310 Version 3.1 Update

In this...our first edition of "Tech Talk", we would like to discuss two functions of the version 3.1 software update for the IQ plus™ 310 indicator.

### WHAT ARE THE VERSION 3.1 PROGRAM UPDATES?

Essentially there are two changes with version 3.1 that need to be addressed—enhanced digital filtering, and adjustable display updating.

#### **RATTLETRAP™** Digital Filtering

Version 3.1 offers **RattleTrap™** digital filtering for digital filtering selections 8, 16, 32, and 64. **Rattletrap™** eliminates the effects of extreme vibrations typical of many industrial weighing applications. This new technology allows the 310 to yield accurate weight readings in high vibration applications where electronic scales could not previously be used. For low vibration applications requiring a quick screen settling time, settings 1, 2, and 4 have our standard, high-speed digital filtering.

Variant readings caused by repetitive and non-repetitive vibrations, fluctuations and noise are discarded with the enhanced software formula. Developed in actual industrial locations, **RattleTrap™** evaluates the frequency of a vibration, then derives the actual weight on the scale less the vibration-induced flaws. Eccentric frequency vibrations can be identified and filtered within 50 milliseconds. The bottom line with **RattleTrap™**—true displayed weight values, rather than vibration-distorted approximations.

#### Display Updating

The version 3.1 program also features a programmable display, so the operator always views a stable and readable weight value. The 310 does this by synchronizing the display update rate with one of the two serial port's End-Of-Line (EOL) delay.

In the previous software version, display updates were performed each time the A/D received an update, approximately 20 times per second. At this rate the display would be constantly updating with the latest weight data, occasionally creating information overload for the operator and an impression that the scale

was super-sensitive.

Version 3.1 software synchronizes display updates with continuous serial transmissions from one of the two serial ports. Data is still generated lightning fast by the A/D converter, but is now much easier for your customer to visually interpret on the display screen.

### WHICH SERIAL PORT IS THE DISPLAY SYNCHRONIZED TO?

Use this easy-to-remember rule. If the Printer port is in the *continuous* mode, the display update is synchronized with the Printer port delay. If the Printer port is the *demand* mode, the display update is synchronized with the EDP port delay.

### HOW DO I ADJUST THE DISPLAY UPDATE RATE THROUGH THE SERIAL PORT EOL DELAY?

As was the case with the previous software, you have the capability to put a programmable time delay after every serial port transmission. This enables the 310 to easily interface with serial printers without buffering. Now, this same EOL delay setting controls the display update rate.

If the serial port synchronized with the display screen update is set for 250ms (1/4 second), the display screen will update 4 times per second. If set at 1000ms, the display will update 1 time per second. The longest possible End of Line Delay setting is 2250ms, which yields a display update of 1 update each 2.25 seconds. A list of possible EOL delay settings, and the display update rate those settings will generate is shown below.

EOL Delay    Display Update Rate	
0ms .....	20 per second
250ms .....	4 per second
500ms .....	2 per second
750ms .....	1.5 per second
1000ms .....	1 per second
1250ms .....	1 per 1.25 seconds
1500ms .....	1 per 1.50 seconds
1750ms .....	1 per 1.75 seconds
2000ms .....	1 per 2.00 seconds
2250ms .....	1 per 2.25 seconds

(See other side for additional information)

In the field, different applications require different update rates. Certain installations require display rates as they're generated, while for others a two to three second rate is sufficient. Whatever the scenario, update rates are easily programmed to meet the needs of the application.

This new program update provides extraordinary flexibility. Now you are able to set your display and serial update rates independently of the digital filtering settings. No longer is your A/D converter tied up with a slow display update rate. Establishing individual update rates allows you to meet the needs of nearly any application your customer needs.

#### WHAT IS A SAMPLE RECOMMENDATION FOR AN UPDATE COMBINATION?

If you need high performance on your next installation, here is something to try. Set your analog filter at 2Hz, set the digital filter at 2, and set the display update rate (EOL delay) at 750ms. Remember, use the rule given to choose the appropriate serial port that will be synchronized with the display update rate. If the display updates too fast, try adjusting the synchronized serial port's EOL delay to 1000ms or 1250ms. Upon evaluating the performance, make any necessary modifications.

For a more complete discussion of the effects of the various filters and EOL delays, see the 3.1 revision of the IQplus 310 manual, Sections 7.2 - 7.4

#### HOW IS THIS NEW SOFTWARE RETROFITTED TO 310?

Everything is included on a new CPU integrated chip. The chip can be easily replaced without removing the Main Circuit Board from its mounting.

To replace the CPU chip, unplug the unit, remove the outer case from the 310 and locate the Main Circuit Board.

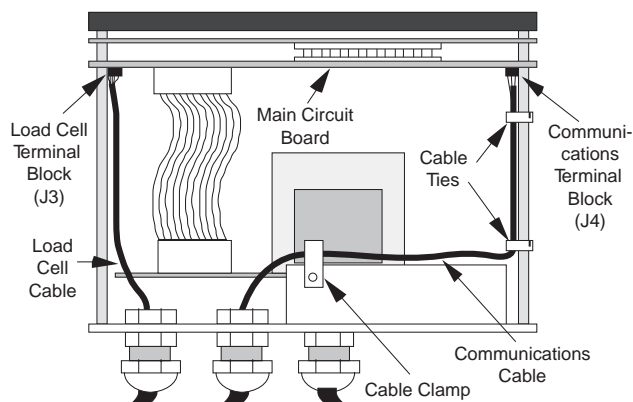


FIGURE 1 - TOP VIEW WITH CASE REMOVED

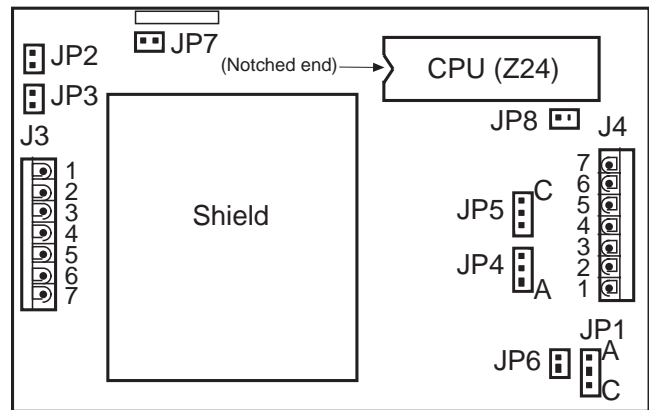


FIGURE 2 - MAIN CIRCUIT BOARD

On the Main Circuit Board, locate the CPU chip labeled "CPU (Z24)." See Figure 2 above for the location of the CPU chip. Note the orientation of the notched end of the chip.

Taking the proper precautions against electrostatic discharge damage, remove the old chip with an IC removal tool or small screwdriver. Align the new CPU chip in the socket so its notched end is in the same direction as in Figure 2. Seat the chip solidly into the socket, and you're done. Replace the case and the unit is ready to power up.

#### DO I NEED TO RETROFIT THE VERSION 3.1 SOFTWARE?

Not necessarily. There are no problems with the original software that require its replacement. However, if your customer requires a display that updates at a slower rate, you may want to order the update. 310's shipped after May, 1992, with serial numbers 92170001 and higher have version 3.1 software installed.

#### IF NEEDED, HOW CAN I GET THE VERSION 3.1 UPDATE?

If you do not have the version 3.1 software and have determined that your customer needs the update, just call our Direct Access line: 715-234-2003. We will be happy to send you one at no charge.

This "Tech Talk" bulletin hopefully addresses the majority of questions related to the 310's version 3.1 software update. If we have overlooked any area of particular interest to your application, please let us know. Any questions or suggestions regarding our products are always welcomed.

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