Avery Weigh-Tronix

ZK830

COUNTING SCALE CHECKWEIGHING BENCH SCALE

High resolution industrial digital scale

Frequently Asked Questions

1. What are the main applications of the ZK830?

The ZK830 can easily be set up in three ways:

- Dedicated counting scale
- Dedicated checkweigher
- Dedicated general high resolution weighing scale

One of these applications can easily be selected through an application choice on the first power up. The scale will then remain in this application.

2. What base and loadcell does the ZK830 use?

The ZK830 has been specially designed to maximize the performance, strength and accuracy of our high resolution Quartzell™ digital BSQ base. This modular design makes it ideal for rental fleet counting scales that allow a wide range of base capacities to be mixed and matched to best meet the customer's requirements.

Please refer to our BSQ FAQ and Specification for more detailed information.

3. Does the ZK830 automatically come attached to a BSQ base?

Yes, the ZK830 comes as standard attached and calibrated to a single BSQ base, making it ideal for counting, checkweighing or high resolution weighing applications.

4. Can my ZK830 indicator be removed from the base? If so, how far away can I use it from the BSQ base?

Yes, the ZK830 indicator can easily be removed from the front of the BSQ base. It can be used up to 50 ft away. Column, wall and desk mounted brackets are available.

5. Can I buy the ZK830 indicator separately to attach it to other BSQ bases that I already own?

Yes, it is possible to purchase the ZK830 indicator module separately to allow for connection to other existing BSQ bases.

6. Is the BSQ base software used compatible with the new ZK830 indicator headwork?

Yes, the BSQ base software is fully compatible to work with the new ZK830 indicator. However, due to accuracy enhancements carried out during the ZK830 development the current BSQ base software has been enhanced slightly. Any BSQ bases with version 1.0.3.0 software and above will have slightly improved count stabilization accuracy to allow faster sampling to take place.

7. Can I down range the ZK830 to offer different capacities than what is listed on the price page?

Yes, the ZK830 is fully configurable to allow it to be quickly set up to cover lower capacities if required.

8. What makes a good counting scale?

A scale with extremely high internal resolution along with excellent linearity and repeatability helps to make an effective counting scale.

9. What is internal resolution and why is it very important in a counting scale?

Internal resolution is the smallest recordable weight change reading that can be measured from the scale. High internal resolution is required when calculating small weight changes or working out accurate piece weight of small components.

10. Why is it important to use the more expensive digital weight transducer over the more conventional analog weight transducer for accurate counting?

Counting scales that use conventional analog strain gauge loadcell design will never count as accurately as a true digital transducer due to the limited internal resolution that they have to work with.

To count any small parts accurately, the scale must be able to measure and calculate a piece weight to at least 10 decimal places. Scales with lower internal resolution suffer from

truncation errors induced from rounding up a coarse internal weight reading.

Example: When counting small parts on a 10 lb ZK830 we expect to see an accurate piece weight calculated up to 10 places; when the same sample is weighed on a scale with a lower internal resolution of around 500,000d usable internal divisions, the piece weight will be calculated to a much lower level, resulting in a rounding error:

- Sampled piece weight off a ZK830: 0.00016632 lb
- Sampled piece weight off an analog scale: 0.0002 lb

Rounding error of 0.00003368 lb which means every 5 parts counted on this analog scale could result in being out by 1 part.

Please note: any filtering that needs to take place to get a stable count reading will also use up a lot of the internal counts available before it can use the remainder to calculate the piece weight.

11. With 1 billion internal count division, what accuracy can I expect to achieve from my ZK830 counting scale?

The ZK830 has been cleverly designed to give outstanding count accuracy due to its high tech Quartzell design and enclosed base structure. This helps to minimize a lot of the outside influences that normally affect counting accuracy. It also enables the ZK830 to count small and large components to an accuracy of 99.75%.

12. What else can affect my part counting accuracy?

Many external elements can greatly affect counting accuracy. Understanding these elements and keeping them to a minimum will help improve sampling accuracy.

The main outside influences that can affect counting accuracy are:

- **Component manufacturing tolerances:** with a larger sample size, the better the chance of averaging out the difference in weight between components being sampled.
- **Operator error:** this can easily happen when an operator accidently counts the wrong amount onto the scale when sampling. The larger the sample size, the greater the risk of operator error.
- **Environmental conditions:** if the counting scale is in a workplace with high vibrations or air interference from ventilation or an open door, it will be much more difficult to determine an accurate sample resulting in piece weight error. To help combat this, the scale can be relocated away from the interfering air vibration or a draft shield barrier around the scale can be used.

13. If I set my ZK830 resolution lower, will this affect accuracy and sampling size?

No, the ZK830 accurately calculates its piece weights based on the internal resolution and not displayed resolution. The scale resolution could be set to 5,000d without affecting count accuracy.

14. What is meant by the setting of the scale's count accuracy from 95% up to 99.5%?

This setting is the minimum count accuracy level you can expect to achieve.

An accuracy of 99.5% means based on the sample taken, if you then placed 1,000 parts on the scale, the error should not be any greater than +/-5 parts.

The ZK830 comes set to 98% accuracy as standard. However, this can easily be changed through the supervisor setting to one of the other settings (off, 95%, 98% 99%, 99.5%).

15. Why should I not set the ZK830 to 99.5% accuracy all of the time?

To achieve 99.5% accuracy constantly may prove to be difficult subject to the environmental interference found within the working area. Scales used in an area with high environmental interference may struggle to get an acceptable sample close enough to achieve the required count accuracy. The higher the accuracy setting chosen, the better the environment must be in order for the scale to achieve that accuracy.

If a 99.5% accuracy is required, the scale may need to be moved away from environmental interferences such as ventilation ducts, walk ways or doorways or on the smaller 2 lb and 5 lb versions a draft shield could be used to improve this. Larger sample sizes will also improve sampling accuracy.

16. If I set my accuracy windows to 95% will my counting accuracy be affected on all samples taken?

No, the scale will always try to calculate the most accurate piece weight it can using the data to hand. If the environment allows it and the scale is set to 95% accurate, the scales will still try to supply accurate piece weights up to 99.9%. Setting the accuracy to 95% just widens the range of items it can sample in the environment where the scale is being used.

17. What is the minimum recommended piece weight I can weigh on the ZK830?

This depends on the minimum sample weight and the quantity of samples being counted.

Based off a sample size of 50 and counting in dribble mode the ZK830 can sample components as small as:

ZK830	Minimum Piece Weight (50 off)	Minimum Sample Weight
2 lb (1kg)	0.000004 lb (2 mg)	0.00022 lb (0.1 g)
10 lb (5kg)	0.000022 lb (10 mg)	0.0011 lb (0.5 g)
70 lb (35kg)	0.000154 lb (70 mg)	0.0077 lb (3.5 g)
175 lb (80kg)	0.000352 lb (160 mg)	0.0176 lb (8 g)

18. What is bulk counting?

Bulk counting requires all the sample parts to be placed on the scale at the same time. Once the scale detects a weight change and then gets a stable reading, the scale automatically calculates the new piece weight.

19. What is dribble counting?

This allows the operator to gradually count all the sample parts onto the scale before having to press the sample key to finalize the new piece weight.

20. How can I speed up my sampling time? It seems to be taking a long time to get a sample.

This normally is due to the accuracy the scale has been set to, in the environment the scale is being used. If the environment is not allowing the scale to obtain a steady accurate sample weight, the sampling time will be longer. To reduce sampling time, either reduce the accuracy in the scale or relocate the scale away from the environmental influences affecting the scale. A draft shield may also help.

21. What happens if I turn off minimum sample?

Minimum sample weight is closely linked to sample accuracy. By turning off the minimum sample weight, this will affect the probability that the parts sampled will have enough sample weight to achieve the accuracy listed in the scale.

By turning this off, the operator has the ability to count much smaller parts on a higher capacity scale, with the trade-off being that desired accuracy may not always be achieved.

22. What is scale latching used for and how should it be used?

Latching is a type of display hold that is ideal when counting very light parts. It locks the display once the reading has stabilized, holding the number of parts counted on the display to allow it to be easily read.

The latch window is based on + / – a number of parts that is set within the supervisor menu. To release this latch or display hold, the scale has to see a weight change over the latched window size to release the display reading.

23. How long is the battery life on the ZK830 battery options?

The internal battery option that sits on the rear of the BSQ base can give up to 16 hours of continuous usage between recharges with a 4 hour recharge time. To recharge, plug in to a scale and an AC outlet. It is recommended that the scale is connected to AC power whenever possible to keep the batteries fully charged at all times. If AC power is temporarily lost, the scale will remain in operation through the charged batteries. NiMH batteries can lose their charge when not used for long periods of time, but they have excellent recharge capabilities.

They can be recharged thousands of times, providing a long life of operation.

ZK830 and BSQ & Internal Battery Option= 16 hours of battery life

ZK830 and BSQ & External Battery Option = 25 hours of battery life.

ZK830 and BSQ and 350 Ohm load on second scale & Internal Battery Option = 10 hours of battery life.

ZK830 and BSQ and 350 Ohm load on second scale & External Battery Option = 19 hours of battery life.

Using battery save features and the auto off feature when not in use can prolong the battery life by up to 80%.

24. Can the battery option be fitted by a distributor out in the field?

Due to the internal charging requirements fitted within the base, this battery option is currently only available as a factory fitted option.

25. Can I run the ZK830 scale from a larger battery?

The ZK830 indicator and BSQ base communication requires a minimum of 9V DC to power the indicator and base, so a 12V lead acid battery will work well as an external battery pack.

This can be powered directly from the rear of the indicator or from the rear of the BSQ base by a center positive barrel plug connector. This makes cable management much neater when the indicator is mounted away from the base, by powering the base directly from the indicator. To get 40 hours of run time, you would need at least a 7.2AHr battery.

26. Where is the calibration data stored?

To give maximum performance to this product, The ZK830 calibration data is currently stored within the ZK830 indicator.

27. How many peripherals can I connect to the ZK830?

The ZK830 can have up to three inputs and three outputs and the ability to run two serial ports and one Ethernet port at the same time, along with a separate analog socket to allow a second analog base to be connected (the remote analog card must be installed inside the indicator to allow a second analog base to be used).

Please note: Even though there are two full duplex RS232 ports and one Mini USB VCP port on the rear of the ZK830 indicator, only two out of these three ports can be used at the same time. This allows you to run a wide range of devices from a single unit.

28. How many Ethernet channels are there in the ZK830?

The ZK830 has one socket, which can work as client or server when using just the local base: or as a server only if a second base is installed.

29. Can I wire in a printer and scanner and a second remote digital base to my ZK830?

Yes, even though a second remote BSQ base will take up one RS232 port, the second RS232 port can be split to accommodate both a printer and a scanner.

30. Can I link up the ZM201 indicator into the ZK830 to run as a remote display?

Yes, this can be set up using one of the serial outputs found on the rear of the ZK830 indicator.

This will allow weight or counts to be viewed on a larger display, ideal when linked to a larger remote platform and when viewing from a distance.

31. Can I link in an optional light stack?

Yes, the ZK830 has the ability to run an optional light stack that will attach to the rear of the BSQ base and take power and outputs directly from the rear of the indicator. This is ideal for repetitive checkweighing applications.

32. How many option cards can I use in the ZK830 indicator?

Only one of two option cards can be fitted inside the ZK830 indicator to give extra functionality. This can be either the 5V Analog output card or the Wi-Fi card.

33. Can I get a second base to connect to the ZK830?

The ZK830 can have up to two bases connected: one local BSQ base and one other remote base.

The second base can either be a second BSQ base by using port 1 of the RS232 ports or an analog base with up to six load cells. Analog bases will require the analog option card to be installed along with the remote keypad module.

34. What capacity limitations are there with a remote base option?

The ZK830 has fully configurable capacity and resolution ranges for both the local and remote bases, making it very flexible to fit into most customers' capacity requirements.

35. If one of my bases fails, can I continue to use the other connected base?

No, due to software space limitations, if either base fails the ZK830 will display an error message and neither base will operate.

36. Can I fit the remote keypad to any ZK830?

The remote keypad option that is required when using the internal database or when connected to a remote platform is a customer or distributor fit option.

This easy to install feature take less than five minutes to fit with no software configuration required and can be fitted to any ZK830 indicator.

The remote keypad installed on the indicator can also be quickly re-centred to avoid unnecessary increase in footprint.

37. Can I have a remote base without using the remote keypad?

No, the only way to select the second remote base is by using the base switching key found on the remote keypad.

38. Can I use and access the internal PLU database without installing a remote keypad?

The remote keypad is required to allow access to the PLU database. However, it can also be accessed by scanning in the PLU barcode if desired.

39. Can I copy the internal database to a PC and reload it into another ZK830?

Yes, the database found within the ZK830 can easily be uploaded or downloaded to allow data transfer to other ZK830 scales or to and from PC. This can be done with our easy-to-use PC data transfer tool, PLU data editor, which can be found with the latest version of Ztools or on the secure side of the Avery Weigh-Tronix website.

40. What data can be stored in the ZK830?

Up to 40 PLUs can be stored within the ZK830. However, the data stored will change subject to what application the ZK830 is working in, as follows:

- **Counting application:** PLU slot number, 7 digit part number, piece weight, tare weight per base, upper and lower count limits.
- **Checkweighing application:** PLU slot number, 7 digit part number, tare weight, upper and lower weight limit.
- **General high resolution application:** PLU number, tare weight per base.

41. Can I link the ZK830 to a separate PC database?

Yes, this can easily be done using simple SMA commands to grab, sample and store piece weights that are held on a separate database.

42. Can I download data to a USB port even if there is no USB device connected and retrieve it at a later date?

No, unlike the ZQ375, the USB port found on the rear of the ZK830 indicator is just a virtual communication port that enables serial data to be easily transferred to a PC or printer. This port has no capability to compile and hold stored data.

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