

August 18, 2020Product: Ishida Scales and WrappersContents: Determining A Barcode Format

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Background

When installing new scales and wrappers it is often necessary to determine the barcode format printed by the previous equipment. The numbers under the barcode are used to determine the barcode format, but ultimately a scanner must read the barcode's bars and spaces correctly.

Knowledge of the barcode format is also helpful when working with POS (Point-Of-Sale) vendors. In many cases, POS vendors are unfamiliar with the random price barcodes printed by scales and wrappers.

This bulletin covers the process of determining a barcode format based on sample labels.

UPC Barcode Details

First, it is necessary to understand the data in the barcode. All UPC barcodes contain 13 digits. The standard default barcode is listed below followed by an explanation of each of the components.

FF CCCCC c/p PPPP c/d

- F** Flag: the first two digits are referred to as the "flag". A "02" flag is used for barcodes that include a price. By convention the leading zero in the barcode is not printed in the numbers under the barcode but it can be enabled when necessary.
- C** Product Code: these digits are used to uniquely identify the product. When programming a PLU, this value is referred to as the "barcode".
- c/p** Price Check Digit: the center digit can be used in many ways but the standard is as a price check digit. This is calculated by an algorithm based on the numeric values in each of the price digits. If the scanner does not calculate the same price check value as the scale there will be an error. This usually occurs when the barcode is incomplete, typically due to a dirty or damaged printhead.
- P** Price: the next section of the barcode is the total price. Four digits are available for a maximum price of \$99.99. If the price is \$100.00 or greater, i.e., five digits, the barcode will not print because it would not include the entire price. A barcode format with five digits for the total price is available.

c/d Check Digit: the final digit is an overall check digit. Similar to the price check digit, an algorithm calculates the value based on all of the numeric digits in the barcode. Just as with a price check digit, if the scanner does not calculate the same number the barcode is invalid.

The samples below show the same barcode printed by two different scales. The numbers below the barcode are only provided to identify the values embedded in the barcode; the format of the numbers has no effect on scanning. The right-to-left size of the barcode is also unimportant. Only the relative width of the bars and spaces are important.



The four common barcode formats used in the USA are listed below. The same barcode reference numbers (1, 2, 4, and 15) are used in almost all Ishida scales and wrappers.

- | | | | |
|------------------|----------|------------|----------|
| 1. 5-Digit Code* | FF CCCCC | c/p | PPPP c/d |
| 2. 6-Digit Code | FF CCCCC | C | PPPP c/d |
| 4. 5-Digit Price | FF CCCCC | P | PPPP c/d |
| 15. Fixed Zero | FF CCCCC | 0 | PPPP c/d |

* Default, industry standard

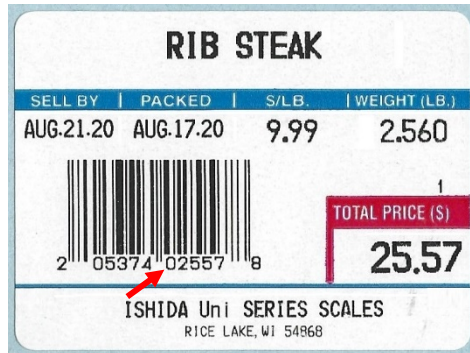
These four barcode formats differ only in the center digit. The selection of a specific format depends on the customer. The 6-Digit format is used by stores that maintain six-digit product codes. Stores that often have items selling for \$100 or more may use the 5-Price barcode format. The Fixed Zero format is typically used to accommodate a scanning system that cannot process a variable price check digit.

Barcode Format Identification Procedure

In order to accurately determine the barcode format, multiple sample labels are required. Labels for at least two PLUs with different prices on each label are needed. One of the labels should have a total price of over \$100.

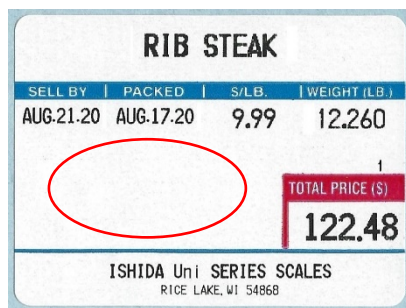
The reason for multiple PLUs with different prices is illustrated by the sample label below. The barcode on this label – with a "0" center digit – could be any of the four

common barcode formats. In almost all cases, the barcode format cannot be determined with only a single label.

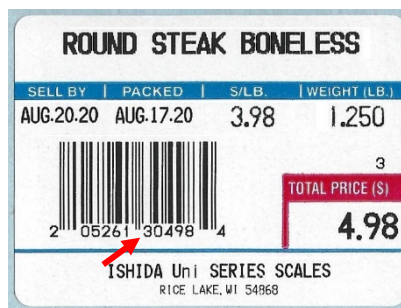


Sample with Zero Center Digit

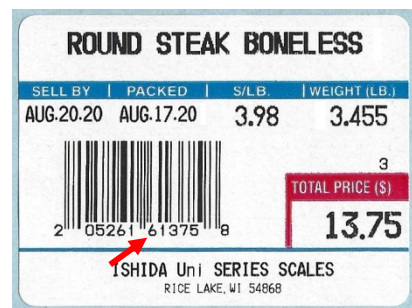
Referring to the three additional sample labels shown below, it is possible to determine the barcode format.



\$100 or Higher Total Price



Second PLU with Two Different Total Prices



The left label above – with no barcode – indicates the barcode does not support five digits for the total price. Because the barcode format does not provide space for the fifth or "hundreds" digit, the barcode does not print. This is normal and prevents an incorrect price from being scanned.

In the center and right labels, the center digit is different for the same PLU. If it was the same that would indicate the 6-Digit Code barcode format was being used. Also, the center digit is not zero as in the original sample label. Therefore, in this case, the barcode format is: 1. 5-Digit Code.

Determining the Barcode Format from a Single Sample

If just one sample label is available, the only way to confirm the barcode format is by programming PLUs and printing labels.

In order to confirm the customer's existing barcode format, an exact replica needs to be created. This will require printing the same flag, code, and total price. The easiest method to match the total price is to use a fixed price PLU. This eliminates the need to use a specific weight to generate the total price.

Begin by setting the barcode flag and format in the scale's Setup menu. Refer to the table below for the location or step to enter these parameters. Select the default barcode format 1. 5-Digit Code to begin. Be sure to program the same barcode format for both weighed and a fixed price PLUs.

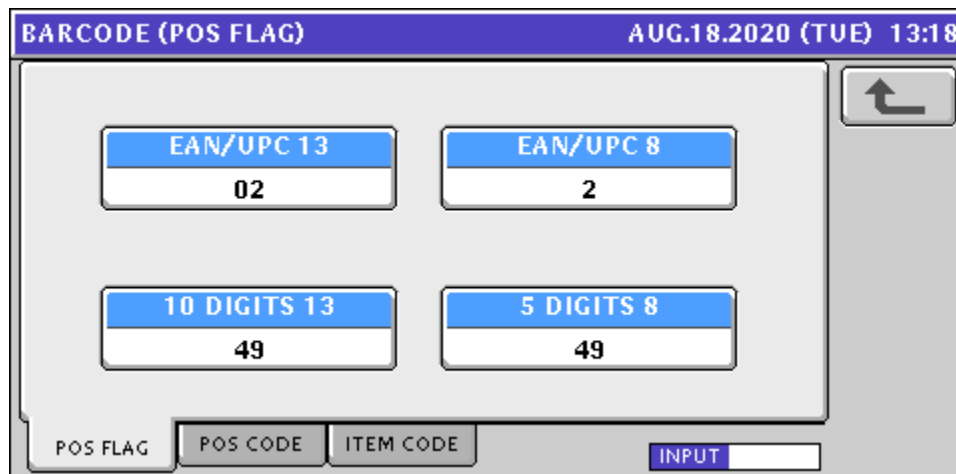
Then create a fixed price PLU with the total price and barcode value matching the sample label.

Print a label and compare the numbers below the barcode with the sample. If the numbers do not match, return to the Setup menu and select a different barcode format.

When the numbers below the barcode match the sample, the correct barcode has been determined. To verify, fold the label top to bottom to split the barcode in half. Then place the barcode over the original sample label to compare the bars and spaces. Finally, confirm the barcode scans for multiple PLUs.

Setting	Default Value	Uni-3	Uni-5/7/9 & WM/IP-Ai
POS Flag	02	B14-01-01	Barcode > POS Flag tab
POS Code Type	EAN/UPC 13	B14-02-01	Barcode > POS Code tab
OCR	UPC12	B14-02-02	Barcode > POS Code tab
POS Weight	FFCCCC(c/p)PPPP(c/d)	B14-02-05	Barcode > POS Code tab
POS Fixed Price	FFCCCC(c/p)PPPP(c/d)	B14-02-06	Barcode > POS Code tab

Barcode Settings and Menu Locations



Uni-7 Barcode POS Flag

Uni-7 Barcode Format Settings

Notes

- If the barcode contains only identification numbers and no variable data, it is referred to as a 10 Digit 13 format. Select this from the POS Code Type option list.
- If the barcode format varies by PLU, as may occur in a packing house, the barcode format may be set at the PLU level. These are the settings.

Pos Flag Sel.:

0: Refer – use the scale's default barcode format and flag value

1: Designate – set the barcode format and flag value for the PLU

UPC Prefix: the PLU flag value is used only if "1: Designate" is selected above

Barcode Select: select a UPC 13 or 10-Digit-13 dry article format

UPC Format: enter the value for 5-digit price (4), zero price check digit (15), etc.

These are the equivalent fields in the SLP software and at the scales:

SLP-V & SLP-5	Uni-3/5/7/9
Pos Flag Sel.	POS Reference
UPC Prefix	POS Flag
Barcode Select	Barcode Type
UPC Format	POS Format



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