

3.A.1.2 Check Digit Calculation for Price/Weight Fields

To increase the security of reading a price or weight from a bar code symbol, the Check Digit for these fields is not only calculated according to the methods described in the previous section, but also according to the procedure described in this section.

The basic principle of the Check Digit calculation is that each digit position in a price/weight field is assigned a weighting factor. Weighting factors are 2-, 3, 5+, and 5-. Each weighting factor affects the particular calculation for the position concerned. The result of such a calculation is called a weighted product.

The figures below show the weighted products of the various weighting factors.

Figure 3.A.1.2 – 1

Weighting Factor 2-										
Calculation rule: The digit is multiplied by 2. If the result has two digits, the tens digit is subtracted from the units digit. The units digit resulting is the weighted product.										
Digit	0	1	2	3	4	5	6	7	8	9
Weighted product	0	2	4	6	8	9	1	3	5	7

Figure 3.A.1.2 – 2

Weighting Factor 3										
Calculation rule: The digit is multiplied by 3. The units digit of the result is the weighted product.										
Digit	0	1	2	3	4	5	6	7	8	9
Weighted product	0	3	6	9	2	5	8	1	4	7

Figure 3.A.1.2 – 3

Weighting Factor 5+										
Calculation rule: The digit is multiplied by 5. The units digit and the tens digit of the result are added together. The result of this sum is the weighted product.										
Digit	0	1	2	3	4	5	6	7	8	9
Weighted product	0	5	1	6	2	7	3	8	4	9

Figure 3.A.1.2 – 4

Weighting Factor 5-										
Calculation rule: The digit is multiplied by 5. The tens digit of the result is subtracted from the result. The units digit of the result of this subtraction is the weighted product.										
Digit	0	1	2	3	4	5	6	7	8	9
Weighted product	0	5	9	4	8	3	7	2	6	1

3.A.1.3 Check Digit Calculation for the Four-Digit Price Field

Figure 3.A.1.3 – 1

Assigned Weighting Factors				
Digit position	1	2	3	4
Weighting factor	2-	2-	3	5-

Calculation step 1: Determine the weighted product for each number in Positions one to four according to the assigned weighting factors.

Calculation step 2: Add the products of step 1.

Calculation step 3: Multiply the result of step 2 by the factor 3. The units digit of the result is the Check Digit.

Figure 3.A.1.3 – 2

Example of a Check Digit Calculation					
Position of price field	1	2	3	4	
Assigned weighting factor	2-	2-	3	5-	
Amount	2	8	7	5	
Step 1: weighted product according to figure	4	5	1	3	
Step 2: sum	+	+	+	+	= 13
Step 3: multiply by 3					= 39

Unit position is the Check Digit



3.A.1.4 Check Digit Calculation for the Five-Digit Price Field

Figure 3.A.1.4 – 1

Assigned Weighting Factors					
Digit positions	1	2	3	4	5
Weighting factor	5+	2-	5-	5+	2-

Calculation step 1: Determine the weighted product for each number in Positions one to five according to the assigned weighting factors.

Calculation step 2: Add the products of step 1.

Calculation step 3: Subtract the result from the nearest equal or higher multiple of 10.

Calculation step 4: Take the result and search for the same number in the weighted product row of [Figure 3.A.1.2 – 4](#). The Check Digit is the number in the digit row of the same column.

Figure 3.A.1.4 – 2

Example of a Check Digit Calculation						
Price field positions	1	2	3	4	5	
Assigned weighting factor	5+	2-	5-	5+	2-	
Amount	1	4	6	8	5	
Step 1: weighted product according to figure	5	8	7	4	9	
Step 2: sum	+	+	+	+	+	= 33
Step 3: result of subtraction (40 - 33)						= 7
Step 4: weighted product 7 in the figure weighting factor 5- shows number 6 to be the Check Digit.						