

EAN-13 PRICE CHECK ALGORITHM

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It is recommended that EAN-13 symbols which include a five digit price, include a price check digit located and computed as follows:

2	F2	X1 X2 X3 X4	X5	X6 X7 X8 X9 X10	C
FLAG 1	FLAG 2	ITEM I.D.	PRICE CHECK	PRICE	MODULO CHECK DIGIT

The price check digit for the 5-digit field is located in character position X5; that is, immediately to the left of the center bar pattern.

The price check position and each of the five positions in the price field has a fixed series of weighted products (or numerical coefficients) associated with it. Specifically,

- Position X5 is weighted by the "5-" series
- Position X6 is weighted by the "5+" series
- Position X7 is weighted by the "2-" series
- Position X8 is weighted by the "5-" series
- Position X9 is weighted by the "5+" series
- Position X10 is weighted by the "2-" series

The 2- weighted products series is derived by multiplying each of the ten decimal values by 2. If the product is greater than 9, 1 is subtracted from the product; otherwise 0 is subtracted from the product. The units position of the differences obtained yields the 2- weighted products series.

The 5+ weighted products series is derived by multiplying each of the ten decimal values by 5, and then summing the digits in the product.

The 5- weighted products series is the ten's complement of the 5+ weighted products series.

Table 1. Weighted products for the ten numeric digits, in each of the three weighted products series.

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Digit	Weighted Products Series		
	2-	5+	5-
0	0	0	0
1	2	5	5
2	4	1	9
3	6	6	4
4	8	2	8
5	9	7	3
6	1	3	7
7	3	8	2
8	5	4	6
9	7	9	1

The method of determining value of the price check digit is presented in the following example:

Given the 5-digit price field containing the number 31546, calculate the price check digit.

Position	Example's Price	Series	Weighted Products (from Table 1)
X6	3	5+	6
X7	1	2-	2
X8	5	5-	3
X9	4	5+	2
X10	6	2-	1
			14

The weighted product of the check digit is the tens complement of the units position of the sum of the weighted products. In the example, the sum of the weighted products is 14, and the tens complement is 6.

Since the price check is in position X5, and X5 is associated with the weighted products series 5-, the check digit of the example is that digit whose 5- weighted product is 6, this is found, per Table 1, to be 8 (for the example).

The price check digit having been evaluated, the value of modulo check digit can be determined per the method pertaining to EAN-13, in the EAN specifications.