

What is UPC Version E?

UPC Version E is a zero suppressed code which compresses a ten-digit value to six digits.

How does it work then?

This is a bit tricky but lets have a go; here is our data Our Data **1230000064**

The manufacturers number is the first 5 digits. The item number is the last five digits.

Compressing the Barcode.

We use the manufacturers number as a key to the compression of the barcode. The digits the where number ends with are used in a series of calculations to make the final 6 digit code.

Manufacturers number ending with 000, 100 or 200. **1210000064**
 First two digit taken from manufacturers number. **12**
 Last three digits taken from item number. **064**
 Third digit from manufacturers number. **1**
 Final Six Digit Number **120641**

Manufacturers number ending with 300, 400, 500, 600, 700, 800, 900. **1230000064**
 First three digits from manufacturers number. **123**
 Last two digits taken from item number. **64**
 Followed by '3'. **3**
 Final Six Digit Number **123643**

Manufacturers number ending with 10, 20, 30, 40, 50, 60, 70, 80, 90. **1231000064**
 First four characters from manufacturers number. **1231**
 Last digit taken from item number. **4**
 Followed by '4'. **4**
 Final Six Digit Number **123144**

Manufacturers number does not end in zero. **12311000064**
 All five digits of the manufacturers number. **12311**
 Followed by last digit from item number. **4**
 Final Six Digit Number **123114**

Encoding the final data?

We now have to calculate the check digit. The check digit is used to define the parity of the barcode.

Calculating the check digit.

Our original data string is used to calculate the check digit, which is **1230000064**

Example.	Parity	O	E	O	E	O	E	O	E	O	E	Total = 28
	Data	1	2	3	0	0	0	0	0	6	4	Modula 10 of 28 = 30 Minus Total = 2
	Multiply	1	3	1	3	1	3	1	3	1	3	Check Digit = 2
	Results	1	6	3	0	0	0	0	6	12		

The total minus the Modula 10 value of the total gives you the check digit number.
 Now we have a check digit value we use that to encode the data string **123643** using a parity table.

Zero Suppression Parity Pattern.

The **E** represent Font Characters

Font Character	a	b	c	d	e	f	g	h	i	j
Data Digits	0	1	2	3	4	5	6	7	8	9

The **O** represents Font Characters **0-9**.

Font Character	0	1	2	3	4	5	6	7	8	9
Data Digits	0	1	2	3	4	5	6	7	8	9

Check Digit Parity Value

Digit	1	2	3	4	5	6
0	E	E	E	O	O	O
1	E	E	O	E	O	O
2	E	E	O	O	E	O
3	E	E	O	O	O	E
4	E	O	E	E	O	O
5	E	O	O	E	E	O
6	E	O	O	O	E	E
7	E	O	E	O	E	O
8	E	O	E	O	O	E
9	E	O	O	E	O	E

How it works.

Check Digit = 2
 Data 1 2 3 6 4 3
 Parity 2 E E O O E O
 Result b c 3 6 e 3
 Our compressed data
 Parity taken from table opposite
 Encoded data using parity characters

Compiling the UPC Version E and Barcode Font Sample.

Start Character ()
 Data bc36e6
 Stop Character)

