

Royal Mail Barcode (RMS4CC)

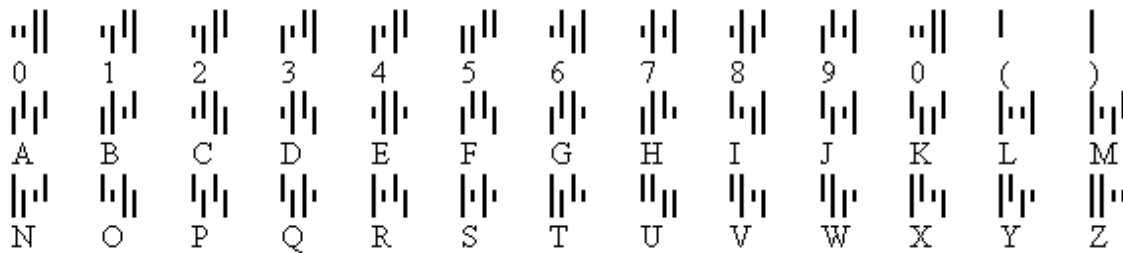
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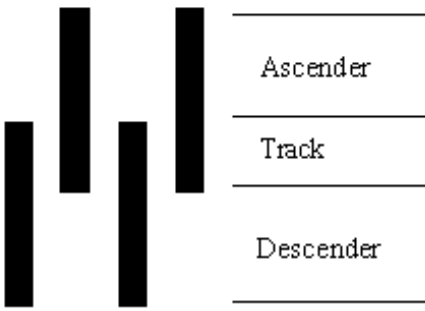
The Royal Mail 4-state Customer Code(RM4SCC) is a height-modulated barcode symbology for use in automated mail sort process. There are 38 valid characters in the entire character set:

- Numeric characters 0-9;
- Upper case letters A-Z;
- Open and close brackets (and) or [and] (only used as start/stop bars)

Figure 1. Royal Mail Character Set



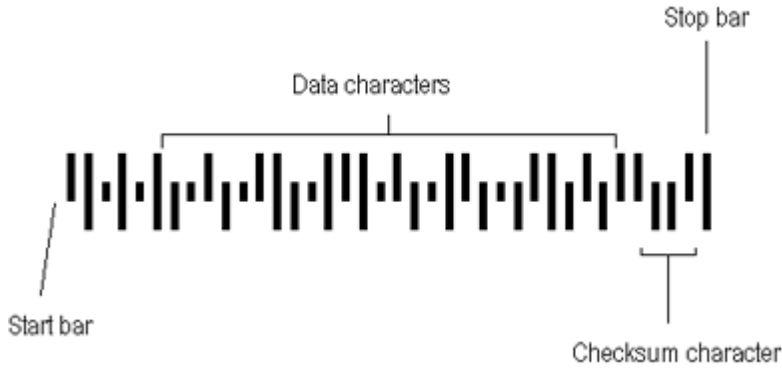
Each RM4SCC character consists of four bars, of which two are ascenders and two descenders. The track element is present in all bars.



Typical RM4SCC character

Structure of a RM4SCC symbol

A complete RM4SCC is made up by a set of distinct bars and spaces for each character, followed by a checksum character and enclosed by a unique Start bar, Stop bar and a quiet zone. The start bar and stop bars are unique and different; thus enable the symbol to be read in any direction. The quiet zone must be at least 2mm in each direction.



Checksum Character Calculation

The checksum character is printed on the right hand of data characters to provide error protection. To calculate the checksum character, perform the following steps:

- Calculate the upper half and lower half values for each data character. A character splits horizontally into an upper half and a lower half. From the right to the left assign each bar a weight. The rightmost bar has a weight of 0, and the second rightmost 1, and third 2 and the leftmost 4.
- Based on absence of an ascender and descender, assign a multiplier to each bar. For the upper half, if the ascender is present, the multiplier is 1 otherwise is 0.
- Multiply the weight and multiplier for each half. Sum together to produce the combination value for each half. If the combination value equals six the value goes back to zero.
- Sum all the values calculated in step 3 to produce upper half and lower half combination totals. Divide each half total by six to get the remainder.
- Look up the table below, use the combination value of upper half as the row reference, the combination value of lower half as the column reference.

Table 1. RM4SCC Checksum Calculation Table

	Column					
Row	1	2	3	4	5	6
1	0	1	2	3	4	5
2	6	7	8	9	A	B
3	C	D	E	F	G	H
4	I	J	K	L	M	N
5	O	P	Q	R	S	T
6	U	V	W	X	Y	Z

Note that the checksum algorithm is only performed on the main data characters contained the code. The Start and Stop bar do not participate the checksum calculation.

Barcode Format

The customer barcode must be a continuous string of characters and must not include white space characters. The code density is 20 to 24 bars per 2.54 cm (20 ~ 24 bars per inch). For detailed requirement on barcode placement and printing requirement, refer to UK postal office¹.

¹ <http://www.royalmail.com/>

