**条码code128编码规则**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code128简介：**  Code128码于1981年推出，是一种长度可变、连续性的字母数字条码。与其他一维条码比较起来，相对较为复杂，支持的字元也相对较多，又有不同的编码方式可供交互运用，因此其应用弹性也较大。 Code128特性： 1、具有A、B、C三种不同的编码类型，可提供标准ASCII中128个字元的编码使用； 2、允许双向扫描； 3、可自行决定是否加上检验位； 4、条码长度可调，但包括开始位和结束位在内，不可超过232个字元； 5、同一个128码，可以由A、B、C三种不同编码规则互换，既可扩大字元选择的范围，也可缩短编码的长度。 Code128各编码方式的编码范围： 1、Code128A：标准数字和字母，控制符，特殊字符； 2、Code128B：标准数字和字母，小写字母，特殊字符； 3、Code128C/EAN128：[00]-[99]的数字对集合，共100个，即只能表示偶数位长度的数字。 Code128编码规则：开始位 ＋ ［FNC1(为EAN128码时加)］ ＋ 数据位 ＋ 检验位 ＋ 结束位 Code128检验位计算：（开始位对应的ID值 ＋ 每位数据在整个数据中的位置×每位数据对应的ID值）% 103   **Code128编码表：**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | ID | Code128A | Code128B | Code128C | BandCode | 编码值 | | 0 | SP | SP | 0 | 212222 | bbsbbssbbss | | 1 | ! | ! | 1 | 222122 | bbssbbsbbss | | 2 | " | " | 2 | 222221 | bbssbbssbbs | | 3 | # | # | 3 | 121223 | bssbssbbsss | | 4 | $ | $ | 4 | 121322 | bssbsssbbss | | 5 | % | % | 5 | 131222 | bsssbssbbss | | 6 | & | & | 6 | 122213 | bssbbssbsss | | 7 | ' | ' | 7 | 122312 | bssbbsssbss | | 8 | ( | ( | 8 | 132212 | bsssbbssbss | | 9 | ) | ) | 9 | 221213 | bbssbssbsss | | 10 | \* | \* | 10 | 221312 | bbssbsssbss | | 11 | + | + | 11 | 231212 | bbsssbssbss | | 12 | , | , | 12 | 112232 | bsbbssbbbss | | 13 | - | - | 13 | 122132 | bssbbsbbbss | | 14 | . | . | 14 | 122231 | bssbbssbbbs | | 15 | / | / | 15 | 113222 | bsbbbssbbss | | 16 | 0 | 0 | 16 | 123122 | bssbbbsbbss | | 17 | 1 | 1 | 17 | 123221 | bssbbbssbbs | | 18 | 2 | 2 | 18 | 223211 | bbssbbbssbs | | 19 | 3 | 3 | 19 | 221132 | bbssbsbbbss | | 20 | 4 | 4 | 20 | 221231 | bbssbssbbbs | | 21 | 5 | 5 | 21 | 213212 | bbsbbbssbss | | 22 | 6 | 6 | 22 | 223112 | bbssbbbsbss | | 23 | 7 | 7 | 23 | 312131 | bbbsbbsbbbs | | 24 | 8 | 8 | 24 | 311222 | bbbsbssbbss | | 25 | 9 | 9 | 25 | 321122 | bbbssbsbbss | | 26 | : | : | 26 | 321221 | bbbssbssbbs | | 27 | ; | ; | 27 | 312212 | bbbsbbssbss | | 28 | < | < | 28 | 322112 | bbbssbbsbss | | 29 | = | = | 29 | 322211 | bbbssbbssbs | | 30 | > | > | 30 | 212123 | bbsbbsbbsss | | 31 | ? | ? | 31 | 212321 | bbsbbsssbbs | | 32 | @ | @ | 32 | 232121 | bbsssbbsbbs | | 33 | A | A | 33 | 111323 | bsbsssbbsss | | 34 | B | B | 34 | 131123 | bsssbsbbsss | | 35 | C | C | 35 | 131321 | bsssbsssbbs | | 36 | D | D | 36 | 112313 | bsbbsssbsss | | 37 | E | E | 37 | 132113 | bsssbbsbsss | | 38 | F | F | 38 | 132311 | bsssbbsssbs | | 39 | G | G | 39 | 211313 | bbsbsssbsss | | 40 | H | H | 40 | 231113 | bbsssbsbsss | | 41 | I | I | 41 | 231311 | bbsssbsssbs | | 42 | J | J | 42 | 112133 | bsbbsbbbsss | | 43 | K | K | 43 | 112331 | bsbbsssbbbs | | 44 | L | L | 44 | 132131 | bsssbbsbbbs | | 45 | M | M | 45 | 113123 | bsbbbsbbsss | | 46 | N | N | 46 | 113321 | bsbbbsssbbs | | 47 | O | O | 47 | 133121 | bsssbbbsbbs | | 48 | P | P | 48 | 313121 | bbbsbbbsbbs | | 49 | Q | Q | 49 | 211331 | bbsbsssbbbs | | 50 | R | R | 50 | 231131 | bbsssbsbbbs | | 51 | S | S | 51 | 213113 | bbsbbbsbsss | | 52 | T | T | 52 | 213311 | bbsbbbsssbs | | 53 | U | U | 53 | 213131 | bbsbbbsbbbs | | 54 | V | V | 54 | 311123 | bbbsbsbbsss | | 55 | W | W | 55 | 311321 | bbbsbsssbbs | | 56 | X | X | 56 | 331121 | bbbsssbsbbs | | 57 | Y | Y | 57 | 312113 | bbbsbbsbsss | | 58 | Z | Z | 58 | 312311 | bbbsbbsssbs | | 59 | [ | [ | 59 | 332111 | bbbsssbbsbs | | 60 | \ | \ | 60 | 314111 | bbbsbbbbsbs | | 61 | ] | ] | 61 | 221411 | bbssbssssbs | | 62 | ^ | ^ | 62 | 431111 | bbbbsssbsbs | | 63 | \_ | \_ | 63 | 111224 | bsbssbbssss | | 64 | NUL | ` | 64 | 111422 | bsbssssbbss | | 65 | SOH | a | 65 | 121124 | bssbsbbssss | | 66 | STX | b | 66 | 121421 | bssbssssbbs | | 67 | ETX | c | 67 | 141122 | bssssbsbbss | | 68 | EOT | d | 68 | 141221 | bssssbssbbs | | 69 | ENQ | e | 69 | 112214 | bsbbssbssss | | 70 | ACK | f | 70 | 112412 | bsbbssssbss | | 71 | BEL | g | 71 | 122114 | bssbbsbssss | | 72 | BS | h | 72 | 122411 | bssbbssssbs | | 73 | HT | i | 73 | 142112 | bssssbbsbss | | 74 | LF | j | 74 | 142211 | bssssbbssbs | | 75 | VT | k | 75 | 241211 | bbssssbssbs | | 76 | FF | I | 76 | 221114 | bbssbsbssss | | 77 | CR | m | 77 | 413111 | bbbbsbbbsbs | | 78 | SO | n | 78 | 241112 | bbssssbsbss | | 79 | SI | o | 79 | 134111 | bsssbbbbsbs | | 80 | DLE | p | 80 | 111242 | bsbssbbbbss | | 81 | DC1 | q | 81 | 121142 | bssbsbbbbss | | 82 | DC2 | r | 82 | 121241 | bssbssbbbbs | | 83 | DC3 | s | 83 | 114212 | bsbbbbssbss | | 84 | DC4 | t | 84 | 124112 | bssbbbbsbss | | 85 | NAK | u | 85 | 124211 | bssbbbbssbs | | 86 | SYN | v | 86 | 411212 | bbbbsbssbss | | 87 | ETB | w | 87 | 421112 | bbbbssbsbss | | 88 | CAN | x | 88 | 421211 | bbbbssbssbs | | 89 | EM | y | 89 | 212141 | bbsbbsbbbbs | | 90 | SUB | z | 90 | 214121 | bbsbbbbsbbs | | 91 | ESC | { | 91 | 412121 | bbbbsbbsbbs | | 92 | FS | | | 92 | 111143 | bsbsbbbbsss | | 93 | GS | } | 93 | 111341 | bsbsssbbbbs | | 94 | RS | ~ | 94 | 131141 | bsssbsbbbbs | | 95 | US | DEL | 95 | 114113 | bsbbbbsbsss | | 96 | FNC3 | FNC3 | 96 | 114311 | bsbbbbsssbs | | 97 | FNC2 | FNC2 | 97 | 411113 | bbbbsbsbsss | | 98 | SHIFT | SHIFT | 98 | 411311 | bbbbsbsssbs | | 99 | CODEC | CODEC | 99 | 113141 | bsbbbsbbbbs | | 100 | CODEB | FNC4 | CODEB | 114131 | bsbbbbsbbbs | | 101 | FNC4 | CODEA | CODEA | 311141 | bbbsbsbbbbs | | 102 | FNC1 | FNC1 | FNC1 | 411131 | bbbbsbsbbbs | | 103 | StartA | StartA | StartA | 211412 | bbsbssssbss | | 104 | StartB | StartB | StartB | 211214 | bbsbssbssss | | 105 | StartC | StartC | StartC | 211232 | bbsbssbbbss | | 106 | Stop | Stop | Stop | 2331112 | bbsssbbbsbsbb |   Code128编码示例：以 95270078 为例 Code128A，开始位对应的ID为103，第1位数据9对应的ID为25，第2位数据5对应的ID为21，依此类推，可以计算检验位 = (103 + 1\*25 + 2\*21 + 3\*18 + 4\*23 + 5\*16 + 6\*16 + 7\*23 + 8\*24) % 103 = 21，即检验位的ID为21。 对照编码表，95270078 编码表示为：开始位StartA（bbsbssssbss）＋ 数据位［9（bbbssbsbbss）＋  5（bbsbbbssbss）＋2（bbssbbbssbs）＋ 7（bbbsbbsbbbs）＋  0（bssbbbsbbss）＋ 0（bssbbbsbbss）＋  7（bbbsbbsbbbs）＋ 8（bbbsbssbbss）］＋  检验位21（bbsbbbssbss）＋  结束位Stop（bbsssbbbsbsbb），即：bbsbssssbssbbbssbsbbssbbsbbbssbssbbssbbbssbsbbbsbbsbbbsbssbbbsbbssbssbbbsbbssbbbsbbsbbbsbbbsbssbbssbbsbbbssbssbbsssbbbsbsbb。若要打印，只需将b用黑色线标出，s用白色线标出，一个简单的条形码生成程序就完成了！ 128B与128A类似，128C只能对长度为偶数的数字串编码，每两个数字为一位，**所以输出的信息压缩了一半，打印的条形码因此也就较短**。接上例，第1位数据95对应ID为95，第2位数据27对应ID为27，第3位数据00对应ID为0，第4位数据78对应ID为78，所以检验位 = (105 + 1\*95 + 2\*27 + 3\*0 + 4\*78) % 103 = 51 EAN128与Code128C相同，只是在开始位后加多一个控制位FNC1（ID为102），同时将FNC1做为第1位数据加入到检验位的计算。 各种方式的编码结果罗列如下：   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 编码方式 | 开始位 | FNC1 | 数据位 | 检验位 | 结束位 | 编码结果 | | Code128A | StartA | 无 | 9 + 5 + 2 + 7 + 0 + 0 + 7 + 8 | (103 + 1\*25 + 2\*21 + 3\*18 + 4\*23 + 5\*16 + 6\*16 + 7\*23 + 8\*24) % 103 = 21 | Stop | bbsbssssbssbbbssbsbbssbbsbbbssbssbbssbbbssbsbbbsbbsbbbsbssbbbsbbssbssbbbsbbssbbbsbbsbbbsbbbsbssbbssbbsbbbssbssbbsssbbbsbsbb | | Code128B | StartB | 无 | 9 + 5 + 2 + 7 + 0 + 0 + 7 + 8 | (104 + 1\*25 + 2\*21 + 3\*18 + 4\*23 + 5\*16 + 6\*16 + 7\*23 + 8\*24) % 103 = 22 | Stop | bbsbssbssssbbbssbsbbssbbsbbbssbssbbssbbbssbsbbbsbbsbbbsbssbbbsbbssbssbbbsbbssbbbsbbsbbbsbbbsbssbbssbbssbbbsbssbbsssbbbsbsbb | | Code128C | StartC | 无 | 95 + 27 + 00 + 78 | (105 + 1\*95 + 2\*27 + 3\*0 + 4\*78) % 103 = 51 | Stop | bbsbssbbbssbsbbbbsbsssbbbsbbssbssbbsbbssbbssbbssssbsbssbbsbbbsbsssbbsssbbbsbsbb | | EAN128 | StartC | FNC1 | 95 + 27 + 00 + 78 | (105 + 1\*102 + 2\*95 + 3\*27 + 4\*0 + 5\*78) % 103 = 44 | Stop | bbsbssbbbssbbbbsbsbbbsbsbbbbsbsssbbbsbbssbssbbsbbssbbssbbssssbsbssbsssbbsbbbsbbsssbbbsbsbb |   结合CODE128 A、B、C，可以生成最优化的编码，即正确编码的同时使条码长度最短，这也是很多条码打印软件支持的，称为CODE128Auto，具体做法是在编码中加入编码控制符，切换编码方式。同上例95270078 字符个数为偶数，采用codec最优，编码方式为StartC ＋ 95 + 27 + 00 + 78 ＋ 校验 ＋ stop，如果字符再增加一位，假设是952700780，可以修改为StartC ＋ 95 + 27 + 00 + 78 ＋codeB ＋ 0 + 校验 ＋ stop |