

## BARCODE STRUCTURE

For domestic parcel distribution

**$S_{12}S_{11}N_{10}N_9N_8N_7N_6N_5N_4N_3N_2N_1P$**

where:  **$S_{12}S_{11}$**  - type of service (alphanumeric character)  
 **$N_{10}$**  - postal region ID number  
 **$N_9N_8N_7N_6N_5N_4N_3N_2N_1$**  - item number  
 **$P$**  - control digit (in order to eliminate other codes with similar structure)

- Barcode standard: **Code 128**
- First 2 alphanumeric  $S_{12}S_{11}$  digits refer to the type of postal service :
  - CP – standard parcel
  - CV – declared value parcel
- $N_{10}$  – refers to the Regional Post Coordination Office ( $N_{10} = 0, \dots, 9$ )
- The control digit is calculated based on digits  $N_{10} \dots N_3$ , using the following algorithm:
  - 1.** Considering the following polynome:  $8 \ 6 \ 4 \ 2 \ 3 \ 5 \ 9 \ 7$ ,  
 corresponding to  $N_{10} \ N_9 \ N_8 \ N_7 \ N_6 \ N_5 \ N_4 \ N_3$ ,  
 where  $N_9 \dots N_3$  is a range of numbers your company receives from Romanian Post
  - 2.** The following calculus is done:  
 $Z = 8 * N_{10} + 6 * N_9 + 4 * N_8 + 2 * N_7 + 3 * N_6 + 5 * N_5 + 9 * N_4 + 7 * N_3$ ,
  - 3.** Make sumo modulus 11 and retain the remainder R.
  - 4.** Control number is then  $C = 11 - R$ 
    - If  $R = 0$ , then  $C = 11$  then  $P = 5$
    - If  $R = 1$ , then  $C = 10$  then  $P = 0$
    - If  $R > 1$ , then  $P = C$