# Documentação do Codificador-Morse

Inicialmente no desenvolvimento do módulo foi realizado o levantamento das equações booleanas para cada saída atravez de mapas de Karnaugh.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | S1 | S2 | S3 | S4 | S5 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | x | x | x | x | x |
| 1 | 0 | 1 | 1 | x | x | x | x | x |
| 1 | 1 | 0 | 0 | x | x | x | x | x |
| 1 | 1 | 0 | 1 | x | x | x | x | x |
| 1 | 1 | 1 | 0 | x | x | x | x | x |
| 1 | 1 | 1 | 1 | x | x | x | x | x |

Mapas de cada saída:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S1: | C’.D’ | C’.D | C.D | C.D’ |
| A’.B’ | 0 | 1 | 1 | 1 |
| A’.B | 1 | 1 | 0 | 0 |
| A.B | x | x | x | x |
| A.B’ | 0 | 0 | x | x |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S2: | C’.D’ | C’.D | C.D | C.D’ |
| A’.B’ | 0 | 0 | 1 | 1 |
| A’.B | 1 | 1 | 0 | 1 |
| A.B | x | x | x | x |
| A.B’ | 0 | 0 | x | x |

S1 = B’.C + B.C’ + A’.B’.D S2 = B’.C + C.D’ + B.C’

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S3: | C’.D’ | C’.D | C.D | C.D’ |
| A’.B’ | 0 | 0 | 1 | 0 |
| A’.B | 1 | 1 | 1 | 1 |
| A.B | x | x | x | x |
| A.B’ | 0 | 0 | x | x |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S4: | C’.D’ | C’.D | C.D | C.D’ |
| A’.B’ | 0 | 0 | 0 | 0 |
| A’.B | 1 | 1 | 1 | 1 |
| A.B | x | x | x | x |
| A.B’ | 1 | 0 | x | x |

S3 = B + C.D S4 = B + A.D’

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S5: | C’.D’ | C’.D | C.D | C.D’ |
| A’.B’ | 0 | 0 | 0 | 0 |
| A’.B | 0 | 1 | 1 | 1 |
| A.B | x | x | x | x |
| A.B’ | 1 | 1 | x | x |

S5 = A + B.D + B.C