# 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 | X1 | X2 | X3 | X4 | X5 |
| 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:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X1: | 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 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X2: | 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 |

X1 = B’.C + B.C’ + A’.B’.D X2 = B’.C + C.D’ + B.C’

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X3: | 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 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X4: | 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 |

X3 = B + C.D X4 = B + A.D’

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X5: | 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 |

X5 = A + B.D + B.C