

①

Tabla 01

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	1

Y \ C \ AB	00	01	11	10
0	1	1	0	1
1	0	0	1	1

C \ AB	00	01	11	10
0	$\bar{A}\bar{B}\bar{C}$	$\bar{A}B\bar{C}$	$AB\bar{C}$	$A\bar{B}\bar{C}$
1	$\bar{A}B C$	$\bar{A}\bar{B} C$	$A B C$	$A\bar{B} C$

$$Y = \bar{A}\bar{C} + AC + A\bar{B}$$

②

A	B	C	Y
0	0	0	1
0	0	1	x
0	1	0	0
0	1	1	0
1	0	0	x
1	0	1	1
1	1	0	0
1	1	1	0

Y \ C \ AB	00	01	11	10
0	1	0	0	x
1	x	0	0	1

C \ AB	00	01	11	10
0	$\bar{A}\bar{B}\bar{C}$	$\bar{A}B\bar{C}$	$A\bar{B}\bar{C}$	$A\bar{B}\bar{C}$
1	$\bar{A}\bar{B} C$	$\bar{A}B C$	$A B C$	$A\bar{B} C$

$$Y = \bar{A}\bar{B}$$

2

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	0
1	0	0	1	1
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

CD \ AB	00	01	11	10
00	1	0	1	0
01	0	1	0	1
11	1	0	1	0
10	0	1	0	1

$$\bar{A}\bar{B}\bar{C}\bar{D} + A\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D + A\bar{B}\bar{C}D + \bar{A}\bar{B}CD + A\bar{B}CD + \bar{A}BC\bar{D} + A\bar{B}C\bar{D}$$

CD \ AB	00	01	11	10
00	$\bar{A}\bar{B}\bar{C}\bar{D}$	$\bar{A}\bar{B}\bar{C}D$	$A\bar{B}\bar{C}\bar{D}$	$A\bar{B}\bar{C}D$
01	$\bar{A}\bar{B}C\bar{D}$	$\bar{A}\bar{B}CD$	$A\bar{B}C\bar{D}$	$A\bar{B}CD$
11	$\bar{A}B\bar{C}\bar{D}$	$\bar{A}B\bar{C}D$	$AB\bar{C}\bar{D}$	$AB\bar{C}D$
10	$\bar{A}BC\bar{D}$	$\bar{A}BCD$	$ABC\bar{D}$	$ABCD$

3

A	B	C	D	Y
0	0	0	0	X
0	0	0	1	X
0	0	1	0	X
0	0	1	1	0
0	1	0	0	0
0	1	0	1	X
0	1	1	0	0
0	1	1	1	X
1	0	0	0	1
1	0	0	1	0
1	0	1	0	X
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	X
1	1	1	1	1

CD \ AB	00	01	11	10
00	X	0	1	1
01	X	X	1	0
11	0	X	1	1
10	X	0	X	X

$$AC + AB + \bar{B}\bar{D}$$

(2)  $Y = (A \cdot B \cdot C \cdot \bar{D}) + (A \cdot \bar{B} \cdot \bar{C} \cdot \bar{D}) + (\bar{A} + \bar{B} + \bar{C} + \bar{D})$

A	B	C	D	$\bar{A}$	$\bar{B}$	$\bar{C}$	$\bar{D}$	I $(A \cdot B \cdot C \cdot \bar{D})$	II $(A \cdot \bar{B} \cdot \bar{C} \cdot \bar{D})$	III $(\bar{A} + \bar{B} + \bar{C} + \bar{D})$	IV I + II + III
0	0	0	0	1	1	1	1	0	0	1	1
0	0	0	1	1	1	1	0	0	0	0	0
0	0	1	0	1	1	0	1	0	0	0	0
0	0	1	1	1	1	0	0	0	0	0	0
0	1	0	0	1	0	1	1	0	0	0	0
0	1	0	1	1	0	1	0	0	0	0	0
0	1	1	0	1	0	0	1	0	0	0	0
0	1	1	1	1	0	0	0	0	0	0	0
1	0	0	0	0	1	1	1	0	1	0	1
1	0	0	1	0	1	1	0	0	1	0	1
1	0	1	0	0	1	0	1	0	1	0	1
1	0	1	1	0	1	0	0	0	1	0	1
1	1	0	0	0	0	1	1	0	1	0	1
1	1	0	1	0	0	1	0	0	1	0	1
1	1	1	0	0	0	0	1	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0	0

AB \ CD	00	01	11	10
00	1	0	1	1
01	0	0	1	1
11	0	0	0	1
10	0	0	1	1

$\bar{A}\bar{B}\bar{C}\bar{D} + A\bar{C} + A\bar{B} + A\bar{D}$

A	B	C	D	Y
x	0	0	0	1
1	x	0	x	1
1	0	x	x	1
1	x	x	0	1



42)  $Y = (\bar{A} \cdot B \cdot C) + (\bar{B} \cdot \bar{C}) + (B \cdot C)$

A	B	C	$\bar{A}$	$\bar{C}$	<sup>I</sup> $(\bar{A} \cdot B \cdot C)$	<sup>II</sup> $(\bar{B} \cdot \bar{C})$	<sup>III</sup> $B \cdot C$	$\Gamma$	$\Pi$	$\text{III}$
0	0	0	1	1	0	1	0	1		
0	0	1	1	0	0	1	0	1		
0	1	0	1	1	0	0	0	0		
0	1	1	1	0	1	0	1	1		
1	0	0	0	1	0	1	0	1		
1	0	1	0	0	0	1	0	1		
1	1	0	0	1	0	0	0	1		
1	1	1	0	0	0	0	1	0		

AB

	00	01	11	10
0	1	0	0	1
1	1	1	1	1

$BC + \bar{B}$

A	B	C	Y
x	x	1	1
x	0	x	1

3)  $((\overline{A+B+C}) \cdot D) + (A \cdot D) + B$

A	B	C	D	I $A+B+C$	II $I \cdot D$	III $A \cdot D$	II + III + B
0	0	0	0	1	0	0	0
0	0	0	1	1	1	0	1
0	0	1	0	0	0	0	0
0	0	1	1	0	0	0	0
0	1	0	0	0	0	0	1
0	1	0	1	0	0	0	1
0	1	1	0	0	0	0	1
0	1	1	1	0	0	0	1
1	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0
1	0	1	0	0	0	0	0
1	0	1	1	0	0	0	0
1	1	0	0	0	0	0	1
1	1	0	1	0	0	0	1
1	1	1	0	0	0	0	1
1	1	1	1	0	0	0	1

Y

AB

CD

	00	01	11	10
00	0	1	1	0
01	1	1	1	1
11	0	1	1	1
10	0	1	1	0

$Y = \overline{C}B + \overline{C}D + AD$

A	B	C	D	Y
x	1	x	x	1
x	x	0	1	1
1	x	x	1	1

$$(B \cdot C) + \bar{A} \bar{B} \bar{C} + B \cdot \bar{C}$$

A	B	C	$B \cdot C$	$\bar{A} \cdot \bar{B} \cdot \bar{C}$	$B \cdot \bar{C}$	$Y = B \cdot C + \bar{A} \cdot \bar{B} \cdot \bar{C} + B \cdot \bar{C}$
0	0	0	0	1	0	1
0	0	1	0	0	0	0
0	1	0	0	0	1	1
0	1	1	1	0	0	1
1	0	0	0	0	0	0
1	0	1	0	0	0	0
1	1	0	0	0	1	1
1	1	1	1	0	0	1

AB \ C	00	01	11	10
0	1	1	1	0
1	0	1	1	0

$$\bar{A} \bar{C} + B$$

A	B	C	Y
0	x	0	1
x	1	x	1

Exercício 5

$S = 1$  = Alarm armado  
 $M = 0$  = No ring mot  
 $W = 1$  = Sensor ok  
 $A = 1$  = Alarme por sensor

W	M	S	A
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

SOP

$$(\bar{W} \bar{M} S) + (\bar{W} M S) + (W M S)$$

POS

$$(W + M + S)(W + \bar{M} + S)(\bar{W} + M + S)$$

$$(\bar{W} + M + \bar{S})(\bar{W} + \bar{M} + S)$$

S	WM			
	00	01	11	10
0	0	0	0	0
1	1	1	1	0

$$Y = \bar{W}S + MS$$