

**GRAY TO CURRENT CONVERTER
GRAYCUR V 1.0**



This converter converts the GRAY value (0 to 35) in the inputs to a current value at the output, from 0 mA to 20mA.

Additionally it shows this value in the embedded display and sends the binary number every second to the RS485 interface.

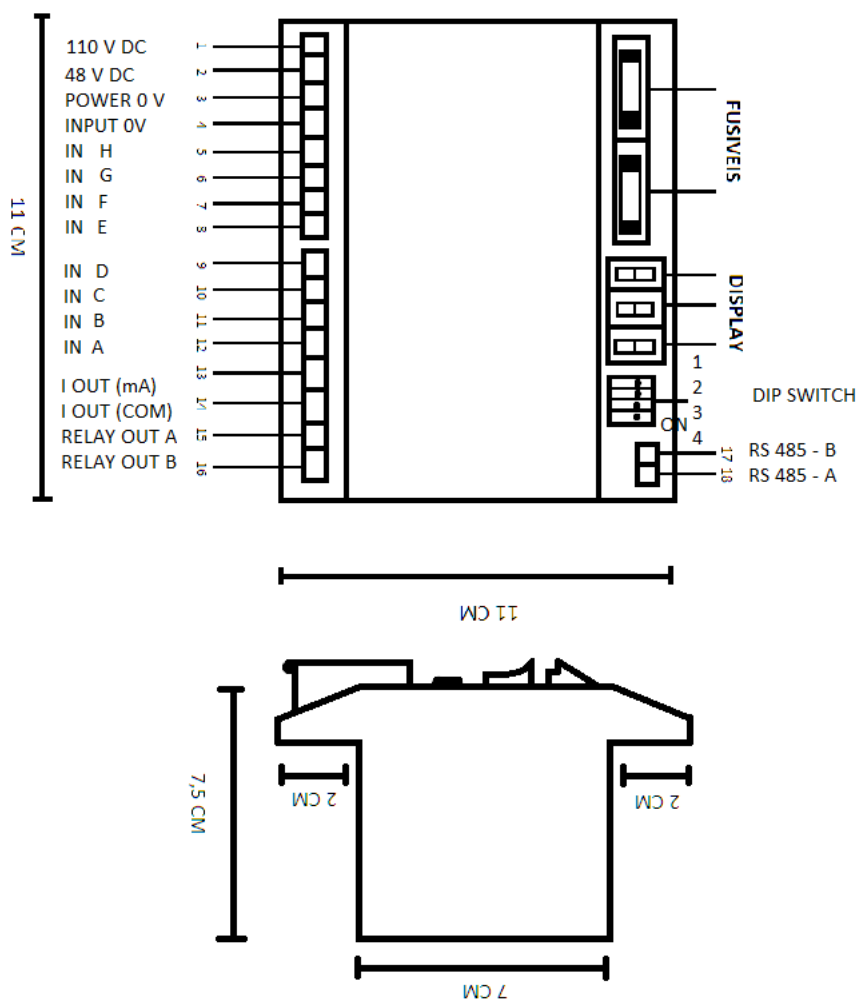
1- The conversion table is as follows:

Decimal	Binary						Gray						mA
D	B5	B4	B3	B2	B1	B0	F	E	D	C	B	A	I
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	0	0	0	0	0	1	0,57
2	0	0	0	0	1	0	0	0	0	0	1	1	1,14
3	0	0	0	0	1	1	0	0	0	0	1	0	1,71
4	0	0	0	1	0	0	0	0	0	1	1	0	2,29
5	0	0	0	1	0	1	0	0	0	1	1	1	2,86
6	0	0	0	1	1	0	0	0	0	1	0	1	3,43
7	0	0	0	1	1	1	0	0	0	1	0	0	4
8	0	0	1	0	0	0	0	0	1	1	0	0	4,57
9	0	0	1	0	0	1	0	0	1	1	0	1	5,14
10	0	0	1	0	1	0	0	0	1	1	1	1	5,71
11	0	0	1	0	1	1	0	0	1	1	1	0	6,29
12	0	0	1	1	0	0	0	0	1	0	1	0	6,86
13	0	0	1	1	0	1	0	0	1	0	1	1	7,43
14	0	0	1	1	1	0	0	0	1	0	0	1	8
15	0	0	1	1	1	1	0	0	1	0	0	0	8,57
16	0	1	0	0	0	0	0	1	1	0	0	0	9,14
17	0	1	0	0	0	1	0	1	1	0	0	1	9,71
18	0	1	0	0	1	0	0	1	1	0	1	1	10,29
19	0	1	0	0	1	1	0	1	1	0	1	0	10,86
20	0	1	0	1	0	0	0	1	1	1	1	0	11,43
21	0	1	0	1	0	1	0	1	1	1	1	1	12
22	0	1	0	1	1	0	0	1	1	1	0	1	12,57
23	0	1	0	1	1	1	0	1	1	1	0	0	13,14
24	0	1	1	0	0	0	0	1	0	1	0	0	13,71
25	0	1	1	0	0	1	0	1	0	1	0	1	14,29
26	0	1	1	0	1	0	0	1	0	1	1	1	14,86
27	0	1	1	0	1	1	0	1	0	1	1	0	15,43
28	0	1	1	1	0	0	0	1	0	0	1	0	16
29	0	1	1	1	0	1	0	1	0	0	1	1	16,57
30	0	1	1	1	1	0	0	1	0	0	0	1	17,14
31	0	1	1	1	1	1	0	1	0	0	0	0	17,71
32	1	1	0	1	1	0	1	1	0	0	0	0	18,29
33	1	1	0	1	1	1	1	1	0	0	0	1	18,86
34	1	1	1	0	0	0	1	1	0	0	1	1	19,43
35	1	1	1	0	0	1	1	1	0	0	1	0	20

2- DIP SWITCH configuration:

Dip Switches are not used in this version.

3- External conections and dimensions:



4- Fastening:

The fastening is made with DIN Rail.

5- Power source:

Power is supplied between the inputs marked with 110V DC and POWER 0 V when being operated at 110 V DC.

Power is supplied between the inputs marked with 48V DC and POWER 0 V when being operated at 48 V DC.

They must not be used simultaneously.

6- Inputs:

The inputs (marked from H to A) accept both 110 V DC as 48 V DC and are completely insulated from the supply.
For the 35 positions only the inputs A to F are used.

The common in the inputs is marked INPUT 0V. It can be the same as the feed. For this purpose it must be connected POWER 0 V and INPUT 0V. Of course in this case they lose part of the insulating characteristics.

7- Consumption:

Source: at 48 V DC → 100 mA, at 110 V DC → 50 mA

Inputs: at 48 V DC → 3 mA , at 110 V DC → 10 mA

8- Fault Relay:

The terminals marked RELAY OUT A and RELAY OUT B are potential free contacts that are closed when it is working correctly and open in case of missing power to the device, the current loop is interrupted or if there is an error in the inputs (inputs outside the defined range - 0 to 35).

9- Error signaling:

In case of an error on the inputs (value outside the table) the fault relay opens, the current loop takes the corresponding zero value on the selected option and the display starts to signal the error with the following sequence at one second intervals:

	E	r	r		Error Sign
	8	-	V		Value of H
	7	-	V		Value of G
	6	-	V		Value of F
	5	-	V		Value of E
	4	-	V		Value of D
	3	-	V		Value of C
	2	-	V		Value of B
	1	-	V		Value of A

The value **V** will be set to 0 if the input is inactive and 1 if the input is active.

In case of problems with the current loop (open Loop or input receiver resistance too high) the fault relay opens, so the current loop takes the corresponding zero value in the selected option and the display shows the error "Loop".

10 – RS485 Communication:

At the moment it is only implemented the operation as Master, sending at every second the actual Binary value that appears in the inputs at a speed of 9600 Bit per second, 8 Bit's, no parity, one stop bit.