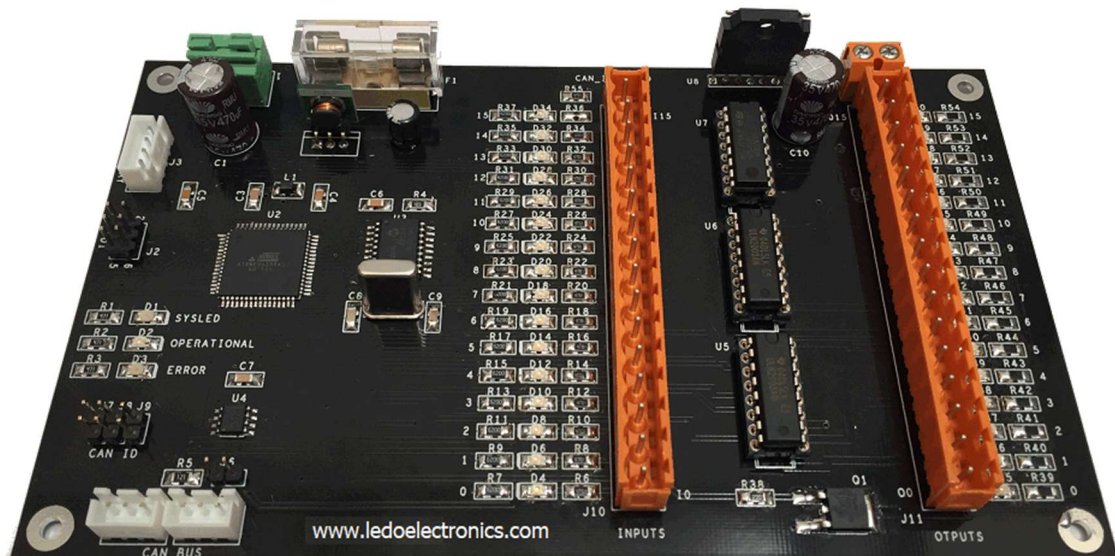


# Module of digital inputs / outputs, for distributed control via CAN Bus

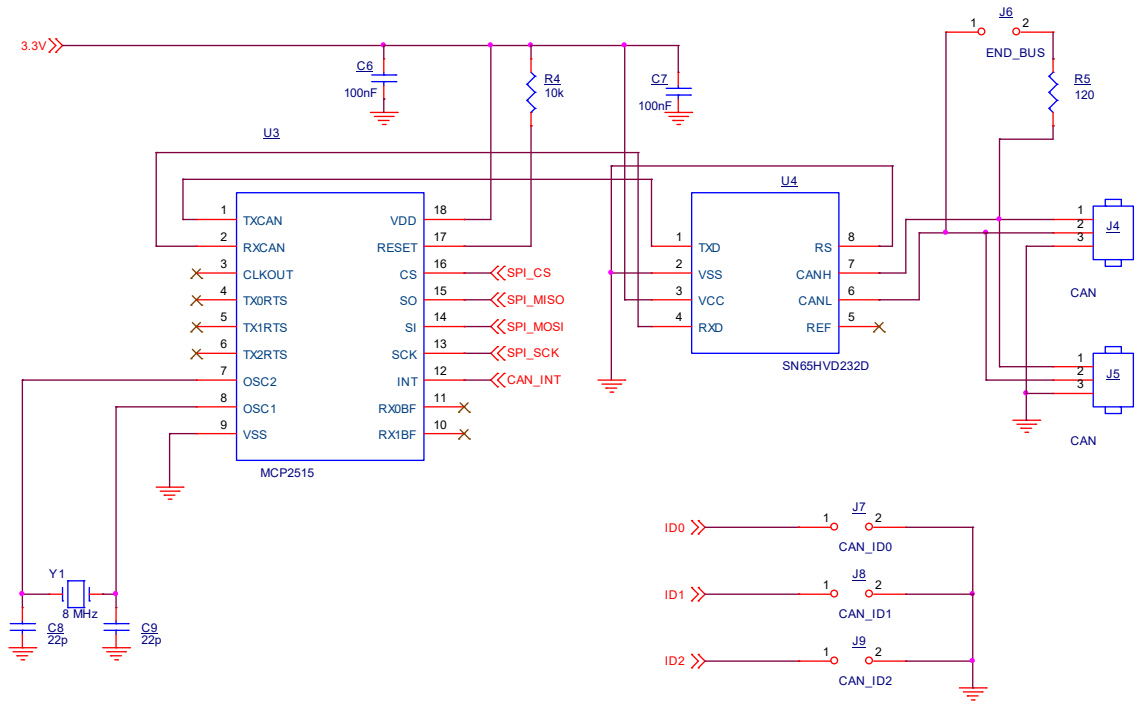
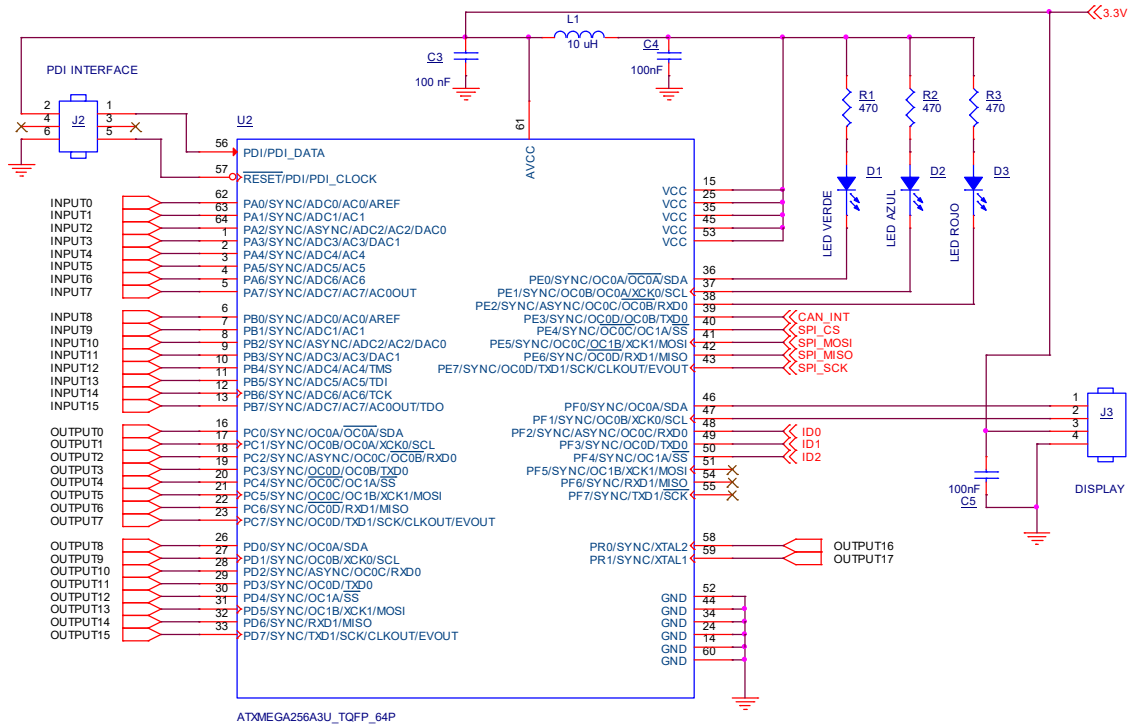


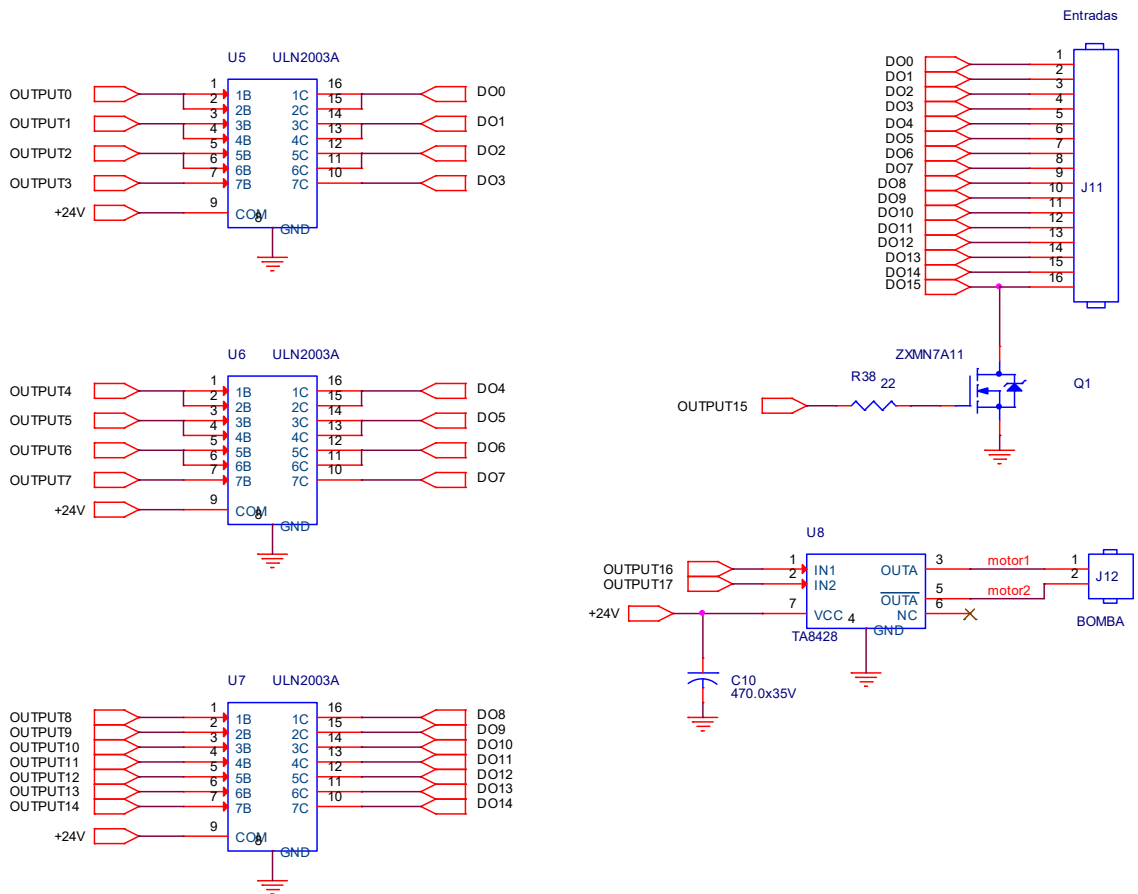
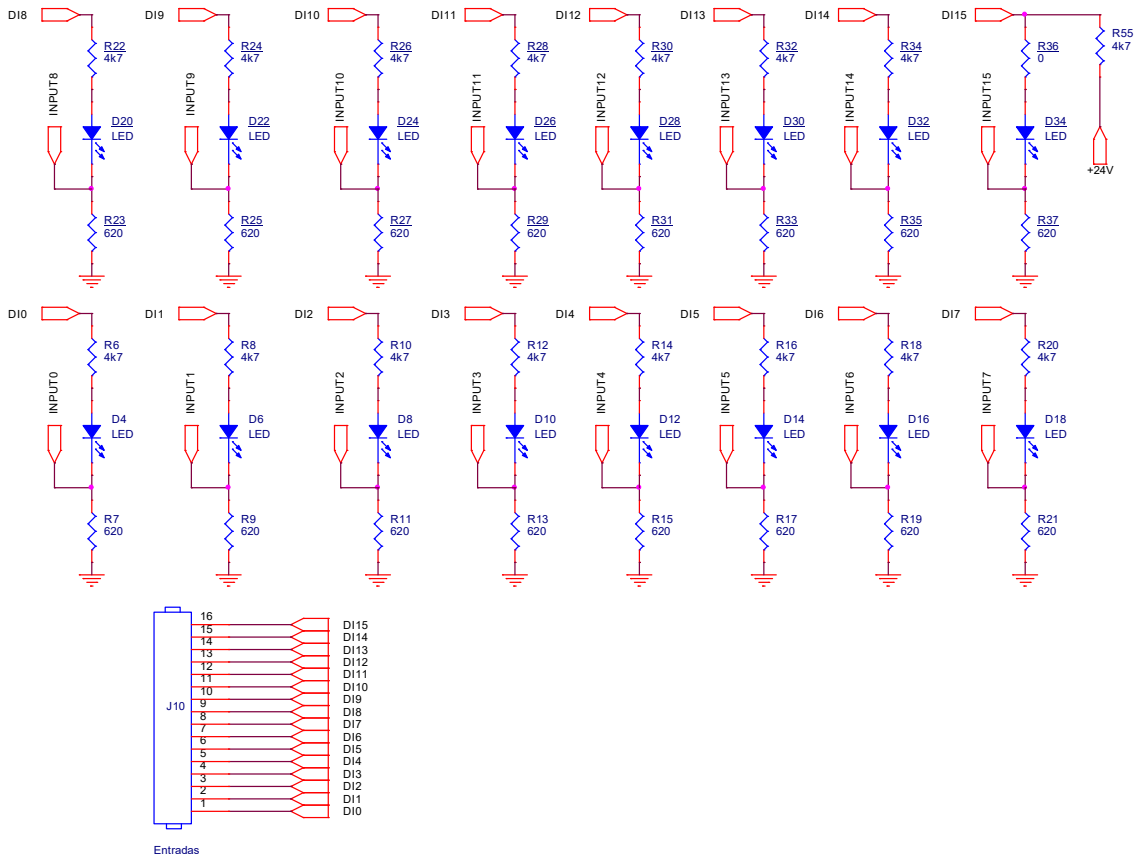
- **Supply voltage: 12 ... 24V**
- **16 digital inputs with status indication**
- **16 Digital outputs with status indication**
- **An H bridge output for motor control**
- **CAN Bus interface (Can Open compatible)**
- **Xmega256a3u programmable in system.**

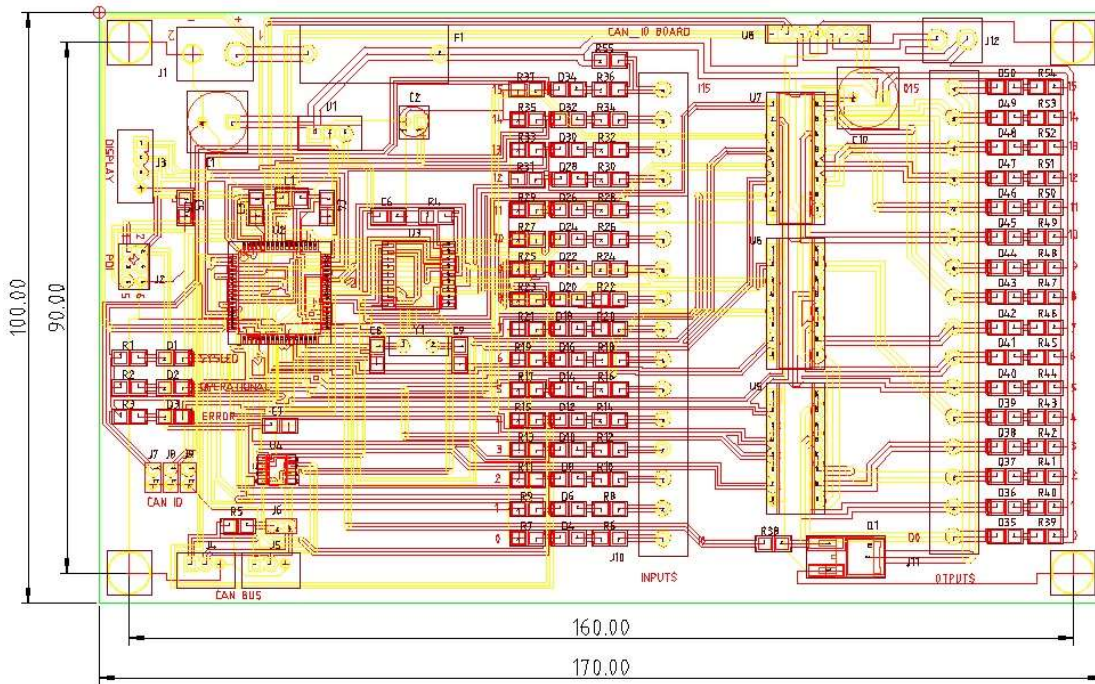
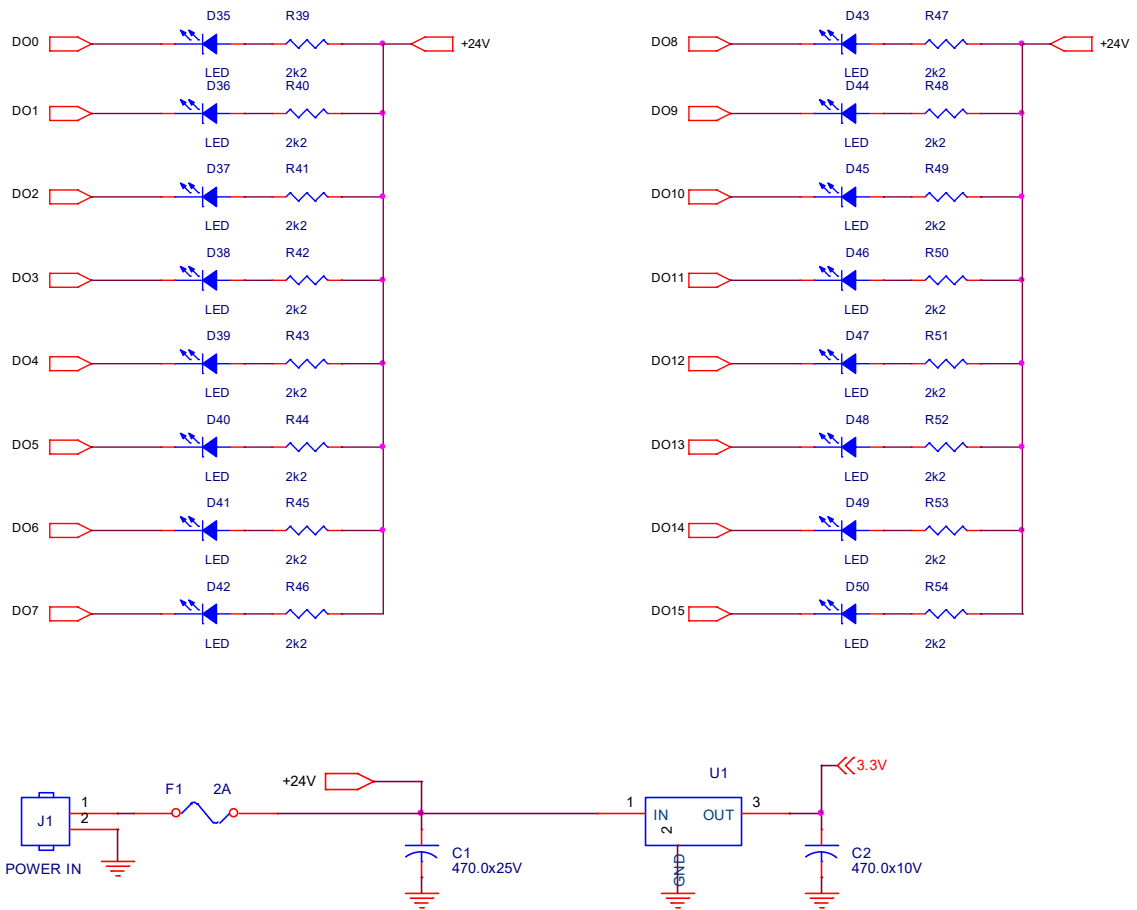
The module has the Can MCP2515 controller compatible with the CAN V2.0B protocol.

The Xmega256a3u Controller handles the management of inputs / outputs, and also contains the communication protocol. Jumper J7, J8, J9 allow to set an address on the bus for compatibility with the Can Open protocol. The LEDs D1, D2 and D3 serve as status indication.

An Oled I2C screen can be connected to connector J3 for the purpose of diagnosis and visualization of variables.







## CAN BUS SOFTWARE REFERENCE

The module has a total of 16 digital inputs, 16 digital outputs and an H bridge output for the Motor control.

The board reacts to all messages whose CAN\_ID matches the one prefixed by jumpers J7, J8, J9 according to the following formula:

$$\text{CAN\_ID} = 1536 + (\text{J9} \ll 2) + (\text{J8} \ll 1) + \text{J7}$$

Where the jumpers are active when Open

### CAN BUS COMMAND LIST

COMMAND (BYTE0)	DATA BYTES	DESCRIPCION
1 OUTS SET	BYTE1: OUTPUTS 0...7 SET MASK BYTE2: OUTPUTS 8...15 SET MASK BYTE3: OUTPUTS MOTOR SET MASK	
2 OUTS CLEAR	BYTE1: OUTPUTS 0...7 CLR MASK BYTE2: OUTPUTS 8...15 CLR MASK BYTE3: OUTPUTS MOTOR CLR MASK	
3 OUTS UPDATE ALL	BYTE 1 = OUTPUTS 0...7 BYTE2 = OUTPUTS 8...15 BYTE3 = OUTPUTS MOTOR	
4 READ IO VARS	NO	

The node responds with the following message:

```
Can.txframe.data[0] = PORTA.IN; //Inputs 0...7 State
Can.txframe.data[1] = PORTB.IN; //Inputs 8...15 State
Can.txframe.data[2] = NO SE USA
Can.txframe.data[3] = NO SE USA
Can.txframe.data[4] = PORTC.IN; //Outs 0...7 State
Can.txframe.data[5] = PORTD.IN; //Outs 8...15 State
Can.txframe.data[6] = PORTR.IN; //Motor Outs State
Can.txframe.data[7] = ((PORTF.IN & 0b00011100) >> 2); //CAN Id Value
```