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IL MANUALE DI GEVINO civile v1.1

Compatible Arduino Zero
Manual v1.1

GEVINO products have been designed for civil, domestic, corporate or industrial environments. They have high voltage and high current inputs and outputs, protected against disturbances, electrostatic discharges, magnetic fields, inductive loads, extra voltages and currents.

They comply with EC directives.

It is possible to customize them for more than 50 pieces.

To program Gevino simply connect it to your computer with a USB cable, write some instructions, and press the «Upload» button. It is very rich in libraries for an infinity of modules and sensors. The instructions are quite simple and understandable.

The programming software, also called IDE (Integrated Development Environment), contains many examples from which to take inspiration to write their own listings.

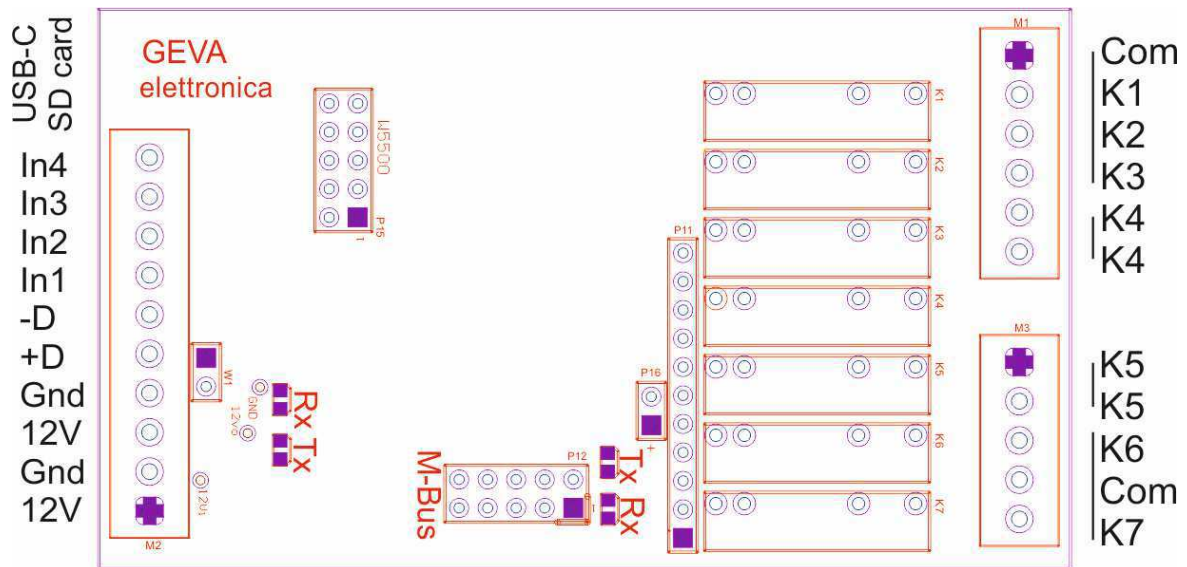
I prodotti GEVINO sono stati progettati per ambienti civili, domestici, aziendali o industriali. Hanno ingressi e uscite ad alta tensione, alta corrente, protetti contro disturbi, scariche elettrostatiche, campi magnetici, carichi induttivi, extra tensioni e correnti.

Sono conformi alle direttive CE.

E' possibile personalizzarle per una quantità superiore a 50 pezzi.

Per programmare Gevino è sufficiente collegarlo al proprio computer con un cavo USB, scrivere qualche istruzione, e premere il tasto «Upload». E' ricchissimo di librerie per un' infinità di moduli e sensori. Le istruzioni sono abbastanza semplici e comprensibili.

Il software di programmazione, chiamato anche IDE (Ambiente Integrato di Sviluppo), contiene numerosi esempi da cui prendere spunto per scrivere i propri listati.



JUMPER

W1 = Terminatore di Linea 1200hm per RS485 - Line Terminator
Modello base, solo con K5, K6, K7

NOTE

You can update the program in the GEVINO from the Internet or SD card with a dedicated bootloader.
Si può aggiornare il programma nel GEVINO da internet o SD card con un bootloader dedicato.

Specs / Specifiche

- Vcc 12V
- 3 relays 250VAC/30VDC 5A
- 4 Inputs 12V
- All input can be interrupt. 10Khz max input frequency
- USB-C
- Micro SD
- 19 Leds
- 5 Serial (EPS-SIM800-RS485-Mbus-USB)
- CPU ATSAM21G18 - Arduino ZERO M0 compatible.
- 48 Mhz, 32-bit ARM® Cortex®-M0+ processor.
- Flash 256KB, RAM 32K
- -40°C +85°C Working temperature

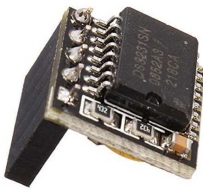
Optional

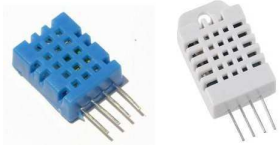
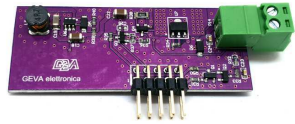
- 4 Relays, Total 7, Only in the absence of the Ethernet module.
- Ethernet W5500
- WiFi ESP01
- Bluetooth HC-xx
- modem cellulare SIM800
- M-Bus master
- RTC with battery
- 220v to 12v Internal power supply.
- OLED display 128x128 pixel
- Bootloader to upload firmware from Micro SD

Utilization / Utilizzo

ARDUINO IDE <https://www.arduino.cc/en/main/software>
Install zero Compiler <https://www.arduino.cc/en/Guide/ArduinoZero>
Choose Board «Arduino/Genuino Zero (Native USB Port)»
Use the Arduino Zero reference guide.
See also the GEVINO zero manual

Accessories / Accessori

ESP-01 Wi-Fi module on SERIAL https://github.com/bportaluri/WiFiEsp (GEVA porting) Work only with Serial, not Serial1, 2, 3. Return bad local IP https://github.com/prampec/IotWebConf	
W5500 ETH module Install Ethernet2 library from library manager. Edit Ethernet2.h file of library: <pre>EthernetClass() { _dhcp = NULL; w5500_cspin = 5; } void init(uint8_t _cspin = 5) { w5500_cspin = _cspin; }</pre>	
SIM800L on SERIAL3 Quad-band: AutoBand, GSM 850, EGSM 900, DCS 1800, PCS 1900. Compliant to GSM Phase 2/2+ Class 4 (2W) at GSM 850 and EGSM 900 Class 1 (1W) at DCS 1800 and PCS 1900 GPRS multi-slot class 12 GPRS data downlink transfer: max. 85.6 kbps GPRS data uplink transfer: max. 85.6 kbps Coding scheme: CS-1, CS-2, CS-3 and CS-4 PAP protocol for PPP connect. Integrate the TCP/IP protocol. Support Packet Broadcast Control Channel (PBCCH) CSD trasmission rates: 2.4, 4.8, 9.6, 14.4 kbps Support SIM card: 1.8V, 3V	
DS3231 RTC Clock https://github.com/jarzebski/Arduino-DS3231 https://github.com/rodan/ds3231	
ON SERIAL OR SERIAL3 HC-08 for BTLE HC-06 for BT http://wiki.pinguino.cc/index.php/SPP_Bluetooth_Modules	

TTL to RS485 DCE (Data Communications Equipment) For direct connection wit PC Use Null-modem male-male db9 cable, for connect a modem.	
temperature-humidity sensor DHT11 20-80% (5%) 0-50°C ($\pm 2^{\circ}\text{C}$) 1 Hz DHT22 0-100% (2-5%) -40-80°C ($\pm 0.5^{\circ}\text{C}$) 0.5 Hz 3 to 5V power and I/O	
M-BUS MASTER ON SERIAL2	

SERCOM

Six Serial Communication Interfaces, each configurable to operate as either:

- USART with full-duplex and single-wire half-duplex configuration
- I2C up to 3.4MHz
- SPI
- LIN slave

<https://www.arduino.cc/en/Tutorial/SamdSercom>

<https://learn.adafruit.com/using-atsamd21-sercom-to-add-more-spi-i2c-serial-ports/overview>

SerialUSB	USB
Serial	ESP-WiFi or Bluetooth
Serial1	RS485
Serial2	M-Bus
Serial3	SIM800 or Bluetooth

Bootloader Italiano

Se non specificato forniamo il gevinio con il bootloader SAM-BA per programmarlo con il IDE Arduino e la porta USB.
Su richiesta possiamo fornire un bootloader che carica il programma dalla SD.

Con gli esempi c'è una cartella "Arduino IDE" con due files e le istruzioni per personalizzare il IDE.

Troverete in "Tools - Board" tre nuove schede:

GEVINO SD bootloader

GEVINO SAM-BA bootloader

GEVINO no bootloader

Il primo compila lo schetch dall'indirizzo 0x8000, il secondo dall'indirizzo 0x2000, il terzo da 0x0000

Compilare con il primo, facendo, "Sketch/Export Compiled Binary" "Sketch/Esporta Sketch compilato"

Rinominare il file presente nella cartella dello scheck in firmware.bin e copiarlo nella SD formattata FAT32

All'accensione, se il GEVINO trova il files, lampeggia il led giallo, poi fa due lenti lampeggi e lancia la app.

Dopo di che cancellare il file o rimuovere la SD, altrimenti ogni accensione si riprogramma la flash.

If not specified we provide the gevinio with the SAM-BA bootloader to program it with the Arduino IDE and the USB port.

On request we can provide a bootloader that uploads the program from the SD.

With the examples there is an "Arduino IDE" folder with two files and instructions for customizing the IDE

You will find three new tabs in "Tools - Board":

GEVINO SD bootloader

GEVINO SAM-BA bootloader

GEVINO no bootloader

The first compiles the sketch from the address 0x8000, the second from the address 0x2000, the third from 0x0000
Compile with the first, doing, "Sketch / Export Compiled Binary"

Rename the file in the sketch folder to firmware.bin and copy it to the FAT32 formatted SD card

At power up, if the GEVINO finds the files, the yellow LED flashes, then makes two lenses flash and launches the app.
After that delete the file or remove the SD, otherwise each power-up will re-flash the flash.

VERY INTERESTING LIBRARY, LIBRERIE MOLTO INTERESSANTI

Facebook

<https://www.facebook.com/GEVAelettronica>

Master slave communication, for RS485, LinBus

<https://zoetrope.io/tech-blog/serial-communication-library-arduinios-1/>

Connection PLC Siemens, Through ethernet.

<http://settimino.sourceforge.net>

Control via smartphone, in wifi, Bluetooth, internet.

<https://www.blynk.cc>

ModBus

<https://github.com/smarmengol/Modbus-Master-Slave-for-Arduino>

<https://github.com/andresarmiento/modbus-arduino>

[Link3](#)

FreeRTOS

<https://github.com/Makeblock-official/FreeRTOS-Arduino>

<https://github.com/greiman/FreeRTOS-Arduino>

Timer

https://github.com/avandalen/avdweb_SAMDTimer

https://github.com/adafruit/Adafruit_ZeroTimer/

LoRa - Long Range Radio

<https://github.com/sandeepmistry/arduino-LoRa>

Firmata – Communication with the PC

<https://github.com/firmata/arduino>

Bootloader for upgrade firmware as if it were a USB memory.

<https://github.com/mattairtech/SAMD-MSD-Bootloader>

<https://github.com/Microsoft/uf2-samdx1>

Bootloader for upgrade firmware, using SD and Internet

<https://github.com/ericbaril72/SAMD21-SDBootloader>

<https://playground.arduino.cc/Code/FTP>

On the site <https://github.com/>

Doing the search with Arduino, you can find anything that comes to mind.

ModBus Master Slave RTU RS485 RS232 IP

Profibus, LinBus, OBD, PID, Python

Arduino Pinout Table

https://github.com/arduino/ArduinoCore-samd/blob/master/variants/arduino_zero/variant.cpp

Arduino	Uno	Leonardo	Zero	TFT	GEVINO	GEVINO	
D0 RxD	PD0 Rx	PD2 Rx	PA11 Rx		Serial1 D0	ESP -RxD- LIN	
D1 TxD	PD1 Tx	PD3Ttx	PA10 Tx		Serial1 D1	ESP -TXD- LIN	
D2	PD2	PD1 SDA	~PA14	D2	D2	In3	
D3	~PD3	~PD0 SCL	~PA9	D3	D3	In4	
D4	PD4	PD4	~PA8 (A6)	D4	D4 A6	In5	
D5	~PD5	~PC6	~PA15	D5	D5	In6	
D6	~PD6	~PD7	~PA20 (A8)	D6	D6 A8	In7	
D7	PD7	PE6	~PA21	D7	D7	In8	
D8	PB0	PB4	~PA6 (A9)	D0	D9 A9	In9	
D9	~PB1	~PB5	~PA7 (A10)	D1	D41 A10	In10	
D10	~PB2 ss	~PB6	~PA18 (A11)	SD-ss	D10 A11	Eth-CS	
D11	~PB3 mosi	~PB7	~PA16	SD-di	D11	Eth-Res	
D12	PB4 miso	PD6	~PA19 (A7)	SD-do	D12 A7	SD-CS	
D13	PB5 sck	~PC7	~PA17 LED (D13)	SD-sck	D13 LED_BUILTIN	Led-Yellow	
D14		PB0 ss					
D15		PB1 sck					
D16		PB2 mosi					
D17		PB3 miso					
AREF	AREF		PA03-AREF (D42)			Out5	
SDA	PC4 SDA	PD1 SDA	PA22		SDA D32	SDA -RTC	
SCL	PC5 SCL	PD0 SCL	PA23		SCL D33	SCL -RTC	
A0	PC0	PF7	PA02 DAC	RD		Analog In Lin- CS	
A1	PC1	PF6	PB08 (A1)	WR	D15	Out1	
A2	PC2	PF5	PB09 (A2)	RS	D16	Out2	
A3	PC3	PF4	PA04 (A3)	CS	D17	Out3	
A4	PC4 SDA	PF1	PA05 (A4)	RST	D18	Out4	
A5	PC5 SCL	PF0	PB02 (A5)		D19	In1	
ICSP							
MISO	PB4	PB3	PA12-MISO (D22)		SPI D22	MISO	
SCK	PB5	PB1	PB11-SCK (D24)		SPI D24	SCK	
MOSI	PB3	PB2	PB10-MOSI (D23)		SPI D23	MOSI	
RESET	RESET	RESET	RESET				
Other							
TxD			PB22 (D26)		Serial D30	HC-TxD	
RxD			PB23 (D25)		Serial D31	HC-RxD	
			PA13 (D38)		D38	In2	
			PB3 (D25)		D25	RxLed	
			PA27 (D26)		D26	TxLed	
		PD5 txled					
		PB0 rxled					
		PE2 HWB					
			PA28 (D27)		D27	Out6	
SWCLK			PA30 (D44)		D44	In12	
SWDIO			PA31 ((D45)		D45	In11	
			PB3 (D25)		D25		
USB					SerialUSB		

CHANGE TO NEXTION LIBRARY:

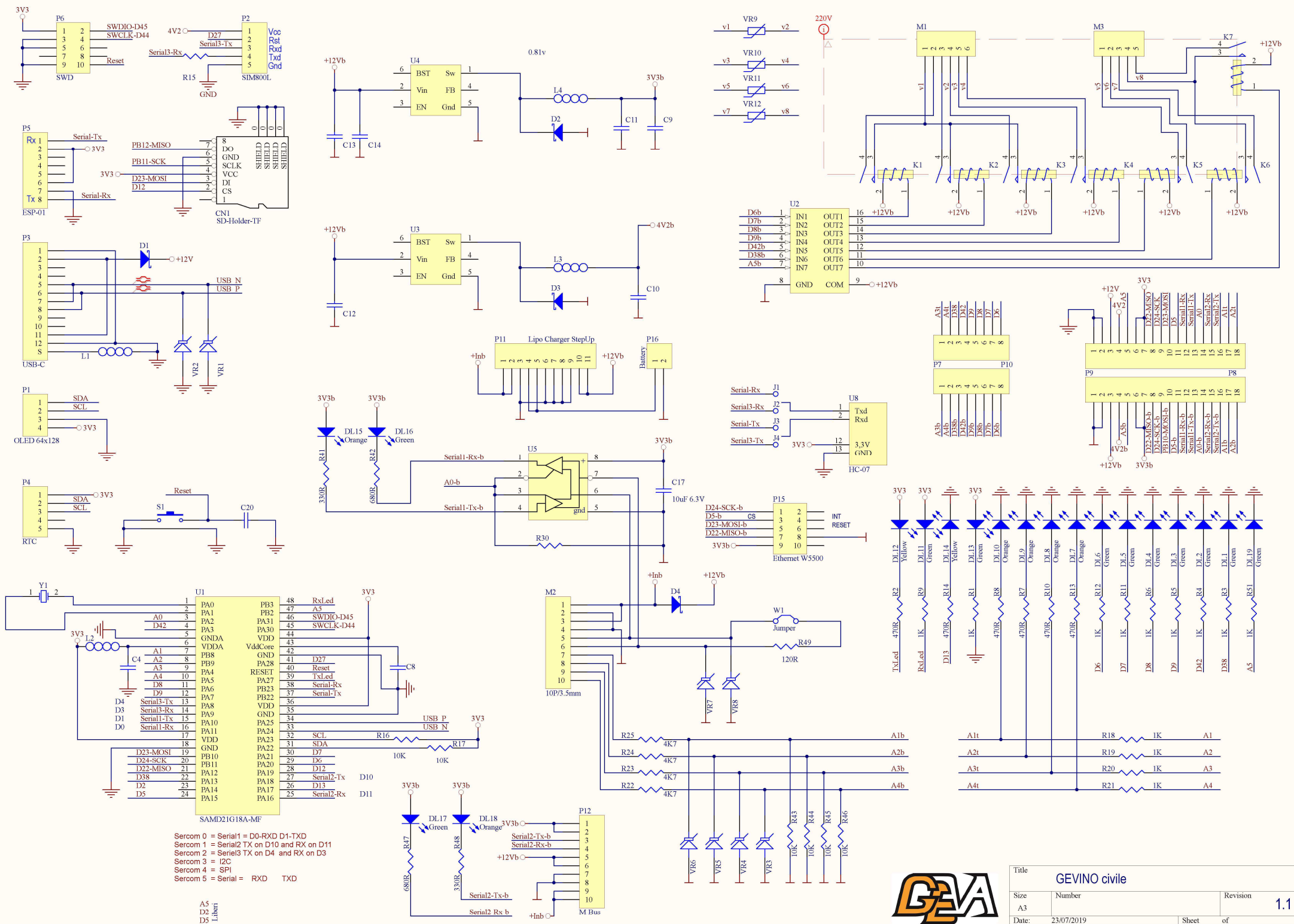
Line 35 of NextUpload.cpp, comment.

```
//#include <SoftwareSerial.h>
```

Line 29..37 of NexConfig.h, change

```
#define dbSerial SerialUSB
```

```
#define nexSerial Serial1 (or Serial)
```



Title			GEVINO civile		
Size	A3	Number	Revision		
Date:	23/07/2019	Sheet	of		
File:	C:\Users\GEVINO Civile - Semplificato	Sheet	of		