

DECLARATION OF CONFORMITY CE DOC (EU)

SG Electronic Systems srls
Via Sicilia 21
20024 Garbagnate Milanese (MI)
Italia

Declares under its sole responsibility that the product:

CAN BUS DUAL ISO V2.1.5:
COD 472 and 471

Is in conformity with the essential requirements of the following EU Directives and therefore qualify for free movement within markets comprising the European Union (EU) and European Economic Area (EEA).

Directive 2014/30/EU (EMC)

Conforms to:

EN 55032:2015+A11:2020(Class B)

EN 55035:2017+A11:2020

EN IEC 61000-3-2:2019

EN 61000-3-3:2013+A1:2019

DECLARATION OF CONFORMITY TO EU ROHS & REACH 211 01/19/2021

SG Electronic Systems boards are in compliance with RoHS 2 Directive 2011/65/EU of the European Parliament and RoHS 3 Directive 2015/863/EU of the Council of 4 June 2015 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Conforms to:

IEC 62321-3-1-2013

IEC 62321-7-2-2017

IEC 62321-6-2015

IEC 62321-8-2017

Substance	Maximum Limit (ppm)
Lead (Pb)	1000
Cadmium (Cd)	100
Mercury (Hg)	1000
Hexavalent Chromium (Cr6+)	1000
Poly Brominated Biphenyls (PBB)	1000
Poly Brominated Diphenyl ethers (PBDE)	1000
Bis(2-Ethylhexyl) phthalate (DEHP)	1000

Exemptions : No exemptions are claimed.

SG Electronic Systems Boards are fully compliant with the related requirements of European Union Regulation (EC) 1907 /2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). We declare none of the SVHCs (<https://echa.europa.eu/web/guest/candidate-list-table>), the Candidate List of Substances of Very High Concern for authorization currently released by ECHA, is present in all products (and also package) in quantities totaling in a concentration equal or above 0.1%. To the best of our knowledge, we also declare that our products do not contain any of the substances listed on the "Authorization List" (Annex XIV of the REACH regulations) and Substances of Very High Concern (SVHC) in any significant amounts as specified by the Annex XVII of Candidate list published by ECHA (European Chemical Agency) 1907 /2006/EC.

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VAT ID: IT-09368540960

COMPANY INFORMATION

Company Name	SG Electronic Systems SRLS
Company address	Via Sicilia 21, 20024 Garbagnate Milanese (MI), Italy

Garbagnate Milanese (MI)
04/03/2023

Legale rappresentante
Pierpaolo Scorrano



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1. PRODUCT DESCRIPTION

Can Bus Dual ISO Pi V 2.1.5 BUS Shield for RaspBerry Pi. It is an Open Hardware Design. It has two functionalities: a can bus module and an onboard Real Time clock powered by a 12 mm battery CR1216 (Battery is not included). The CanBus is based on a couple of MCP2515 SPI controllers and ISO1050 transceivers. All functionalities are full integrated in standard linux kernel, so, they can be available on fly, or at last recompiling linux kernel to add can bus functionalities. The real time clock is based on PCF85063 I2C controller. This is the same RTC of official carrier CM4IO. It is full compatible with linux too. Using I2C Kernel module, and standard kernel functions, date and hour can be set/get by simple commands. On the bottom side is located an on board battery to guarantee a data autonomy. In chapter hardware there are all informations on principal components, schematics to rebuild and modify RaspBerry Pi board.

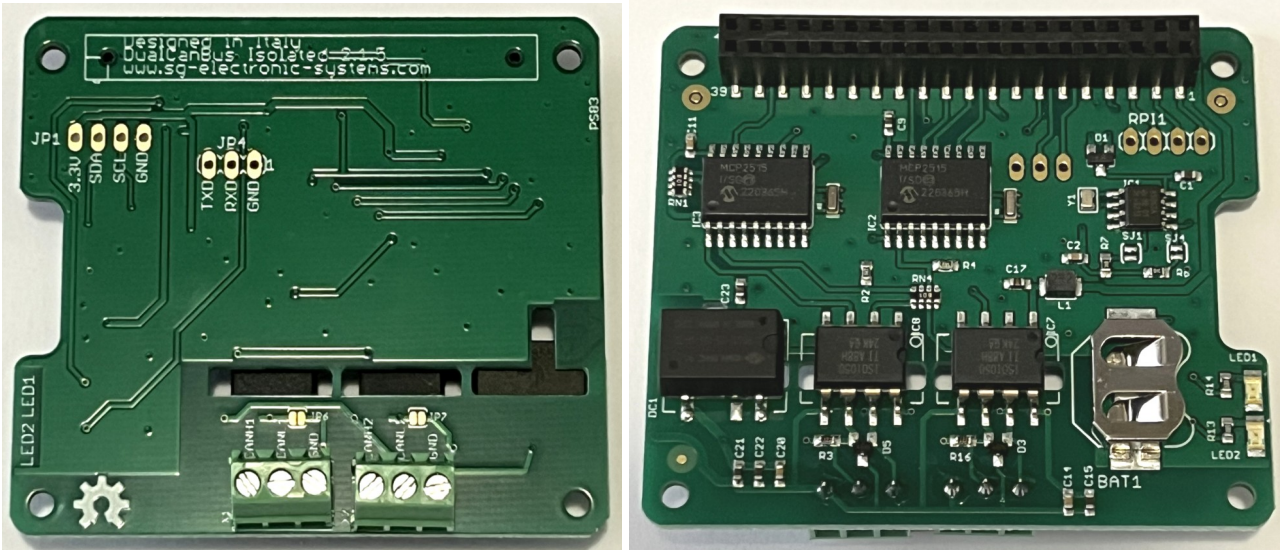


Figure 1-1 Can Bus Dual Isolated V2.1.5 Two Channels

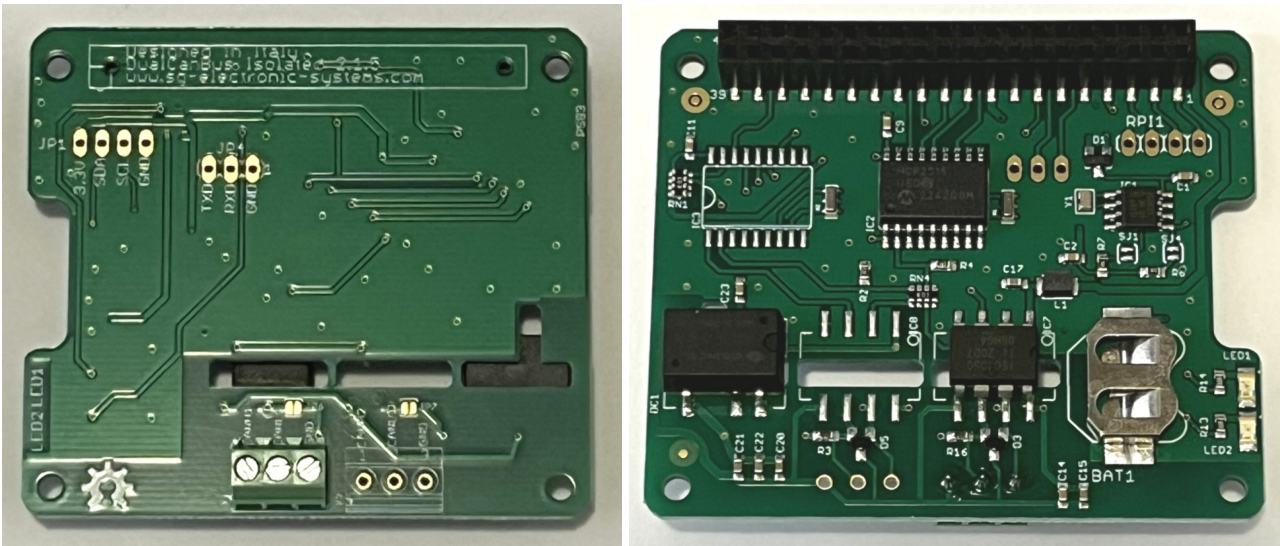


Figure 1-2 Can Bus Dual Isolated V2.1.5 One Channel

2. DEFINITIONS AND ABBREVIATIONS

A general list of abbreviations and acronyms used in this document is reported in the following table

Acronym	Meaning
CPU	Central Processing Unit
HW	Hardware
PCB	Printed Circuit Board
RF	Radio Frequency
TN	Technical note
UUT	Unit Under Test

2.1 TARGET AREAS

Education, R&D, Maker, Robotics, Signal Processing

2.2 RECOMMENDED OPERATING CONDITIONS

Symbol	Description	Min	Typ	Max	Unit
Vin	Voltage input	4,5	5	5,1	VI
I	Current consuption	100	150	200	mA
Temp	Temperature operation	0	25	50	°C

2.3 BOARD DIMENSION

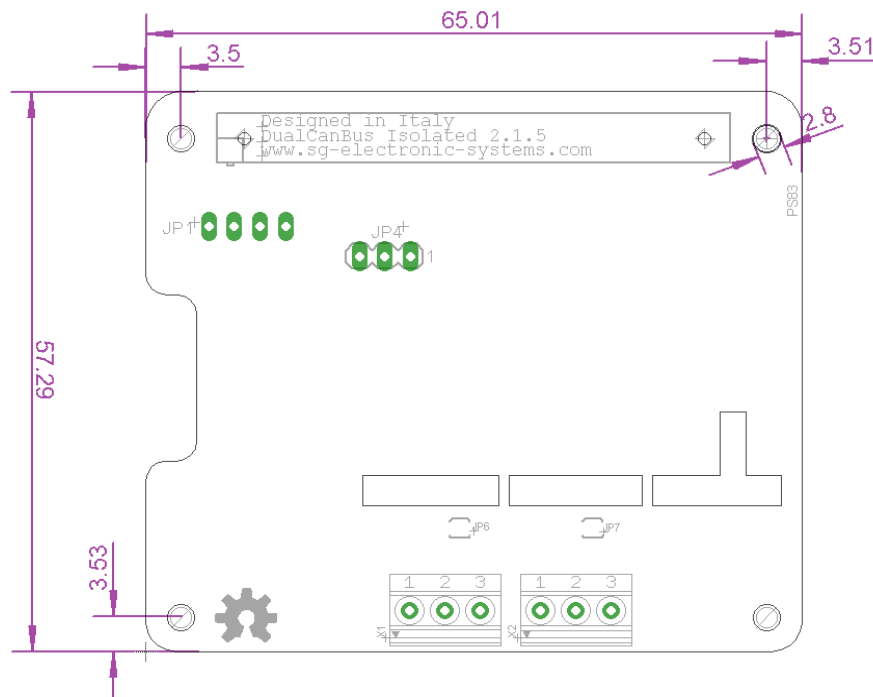


Figure 2-3 Mechanical dimension

2.4 BOARD SCHEMATIC

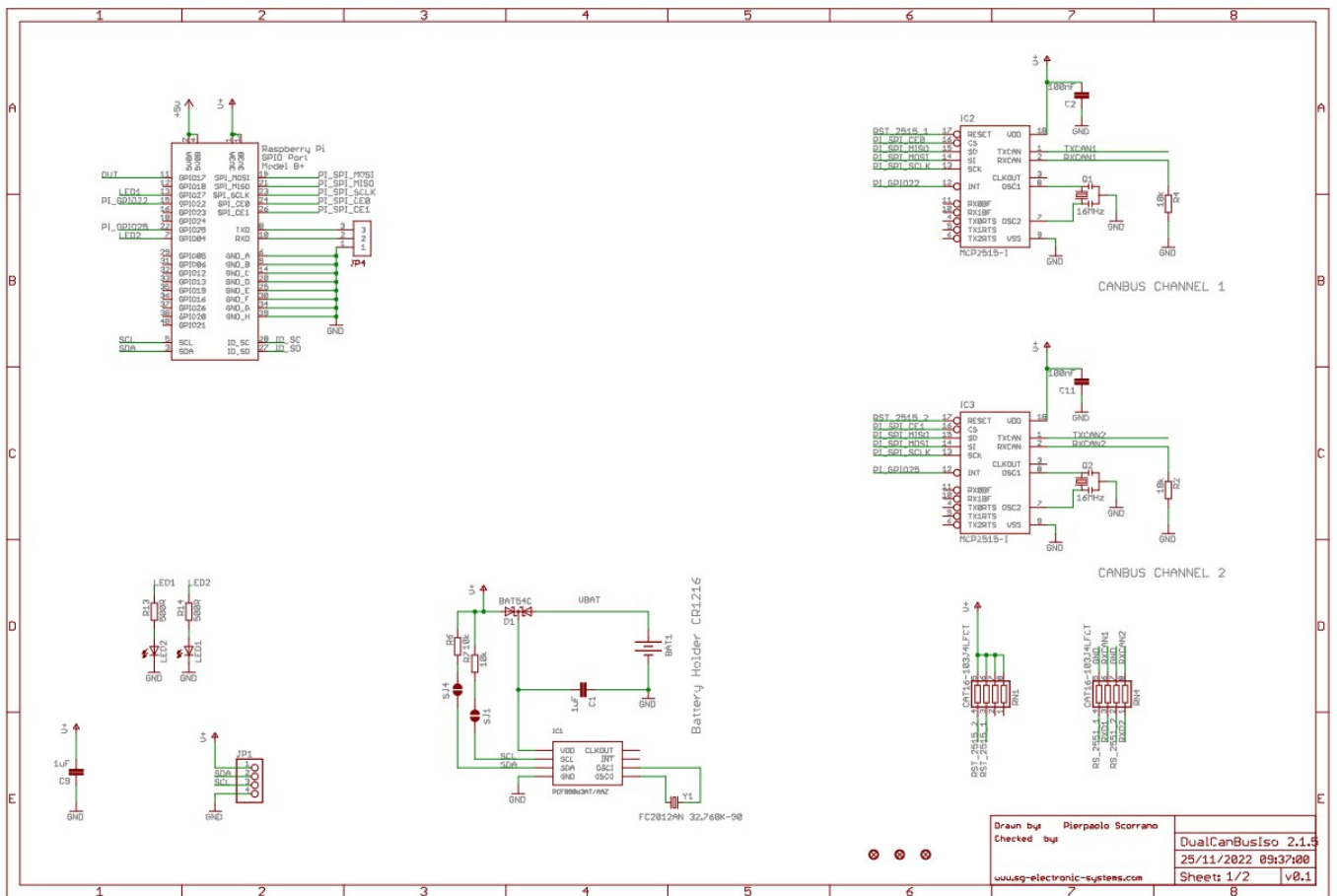


Figure 2-4 Schematic Page 1

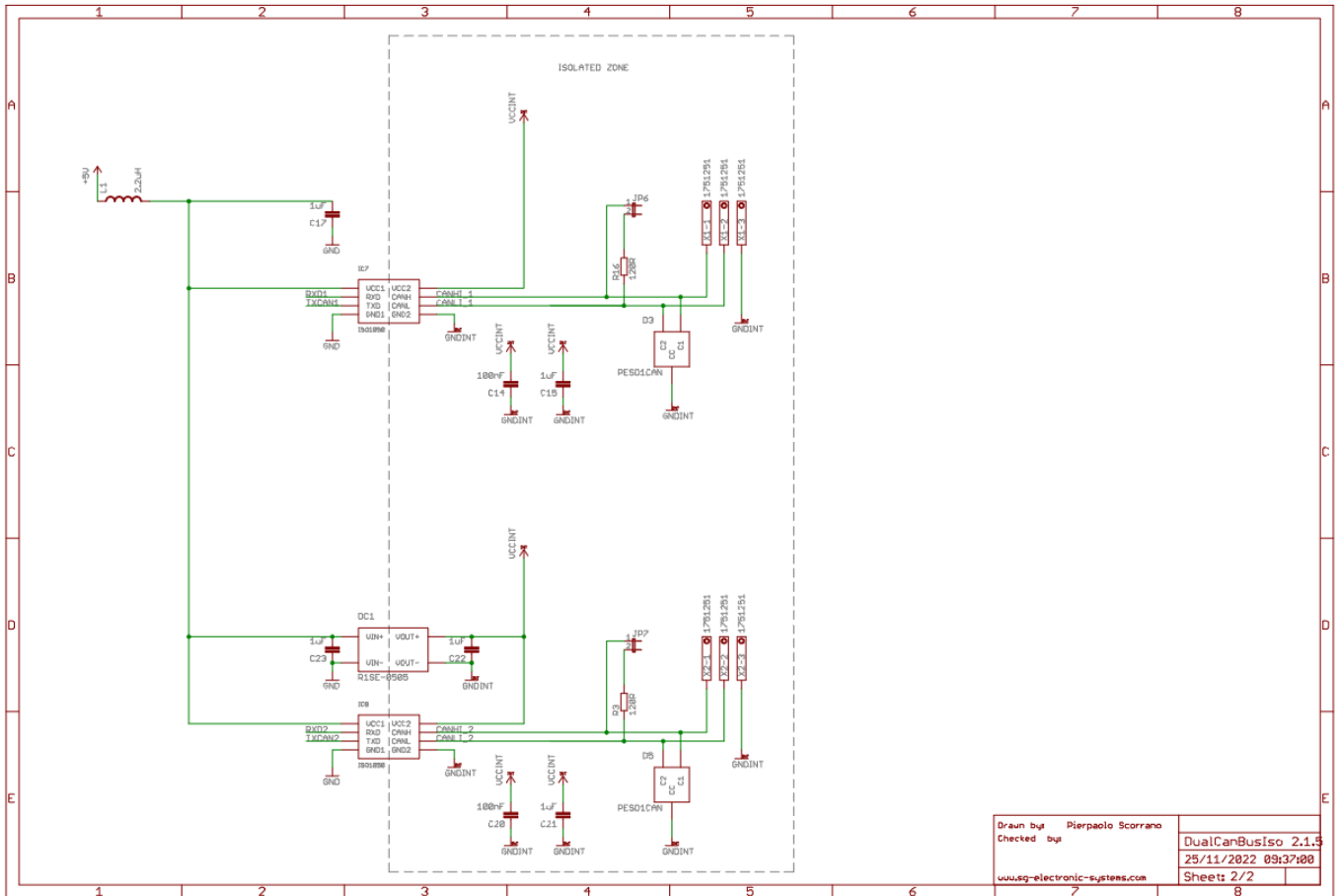


Figure 2-5 Schematic Page 2

2.5 BILL OF MATERIALS

All the components used in our boards are Rosh compliant.

Designator	QTY	MANUFACTURER	MANUFACTURER P/N
BAT1	1	Linx Technologies	BAT-HLD-012-SMT
LED1, LED2	2	Kingbright	APT3216SYCK
RPI1	1	Sullins Connector Solutions	NPPC202KFMS-RC
C2, C11, C14, C20	4	Würth Electronics	885012206020
R6, R7	2	Bourns	CMP0603AFX-1002ELF
R3, R16	2	Panasonic	ERJ-U03J121V
Q1, Q2	2	Murata Electronics	CSTNE16M0V53L00ZR0
X1, X2	2	Würth Electronics	691214110003
R2, R4	2	Panasonic	ERJ-3GEYJ183V
C1, C9, C15, C17, C21, C22, C23	7	Yageo	CC0603KRX5R8BB105
L1	1	TDK	NLCV32T-2R2M-EF
R13, R14	2	Vishay	CRCW0603499RFKEAC
D1	1	Rectron	BAT54C
RN1, RN4	2	Bourns Inc.	CAT16-103J4LF
Y1	1	Epson	FC2012AN 32.768K-90NN60KD7
IC7, IC8	2	TI	ISO1050DUBR
IC2, IC3	2	Microchip	MCP2515-I/SO
IC1	1	NXP	PCF85063AT/AAZ
D3, D5	2	NXP	PESD1CAN-UX
DC1	1	CUI Inc.	PDS1-S5-S5-M-TR
PCB CUSTOM	1	JLPCB	

Table 2-1 Bill of material Option 2 channels

Designator	QTY	MANUFACTURER	MANUFACTURER P/N
BAT1	1	Linx Technologies	BAT-HLD-012-SMT
LED1, LED2	2	Kingbright	APT3216SYCK
RPI1	1	Sullins Connector Solutions	NPPC202KFMS-RC
C2, C11, C14, C20	4	Würth Electronics	885012206020
R6, R7	2	Bourns	CMP0603AFX-1002ELF
R3, R16	2	Panasonic	ERJ-U03J121V
Q1, Q2	2	Murata Electronics	CSTNE16M0V53L00ZR0
X1	1	Würth Electronics	691214110003
R2, R4	2	Panasonic	ERJ-3GEYJ183V
C1, C9, C15, C17, C21, C22, C23	7	Yageo	CC0603KRX5R8BB105
L1	1	TDK	NLCV32T-2R2M-EF
R13, R14	2	Vishay	CRCW0603499RFKEAC
D1	1	Rectron	BAT54C
RN1, RN4	2	Bourns Inc.	CAT16-103J4LF
Y1	1	Epson	FC2012AN 32.768K-90NN60KD7
IC7	1	TI	ISO1050DUBR
IC2	1	Microchip	MCP2515-I/SO
IC1	1	NXP	PCF85063AT/AAZ
D3, D5	2	NXP	PESD1CAN-UX
DC1	1	CUI Inc.	PDS1-S5-S5-M-TR
PCB CUSTOM	1	JLPCB	

Table 2-2 Bill of material Option 1 channel

2.6 BOARD INSTALLATION

All our boards are tested on genuine Raspberry Pi boards, follow the correct orientation.



Figure 2-6 Can Bus Dual ISO V2.1.5 on CM4



Figure 2-7 Can Bus Dual ISO V2.1.5 on Raspberry Pi 4

3. SUPPLIER DECLARATION

3.1 PCB ASSEMBLY



22076 Mozzate (Co) Via Trieste 74/c - tel. 0331821732 fax. 0331833680 - part.Iva e cod. fiscale 07165120150

Mozzate, 01/03/2023

Oggetto: **dichiarazione di conformità alla direttiva :
RoHS (2011/65/EU e 2015/863/EU).**

Spett.le SG ELECTRONIC

I produttori di apparecchiature elettriche ed elettroniche devono rispettare la direttiva RoHS che vieta l'uso di alcune sostanze pericolose oltre un preciso limite. L'allegato II della direttiva aggiornata specifica queste sostanze e la loro massima concentrazione espressa in peso / peso nel materiale omogeneo:

- Lead (0,1%)
- Mercury (0,1%)
- Cadmium (0,01%)
- Hexavalent chromium (0,1%)
- PBB (Polybrominated biphenyls) (0,1%)
- PBDE (Polybrominated diphenyl ethers) (0,1%)
- Bis(2-ethylhexyl) phthalate (DEHP) (0,1%)
- Butyl benzyl phthalate (BBP) (0,1%)
- Dibutyl phthalate (DBP) (0,1%)
- Diisobutyl phthalate (DIBP) (0,1%)

I materiali acquistati da CO-EL, secondo quanto dichiarato dai fornitori e costruttori, sono conformi alle richieste della direttiva in essere.

Durante il processo di assemblaggio e saldatura dei codici:

1DUALCAN BUS ISO V2.1.5 – OL0003/23 – 99 PZ

2DUALCAN BUS ISO V2.1.5 – OL0004/23 – 99 PZ

Sono stati impiegati solo materiali compatibili con la direttiva Rohs (comunemente detti Lead Free).

Roberto Visentin

Qualità

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e-mail : qualita@co-el.it - web : www.co-el.it

Figure 4-8 Certification of BOARD assembler

3.2 PCB PRODUCTION



Figure 4-9 Certification of PCB supplier

3.2.1 TEST REPORT

Document	Testing service	Description	Date
PCB-FR-4-ROHS-Test-Report.pdf	BCWT	BCWR190813316R	19/08/2019
KSM-388W Thermal curable marking ink Test Report.PDF	SGS	SHAEC1706278303	11/04/217
RS-2000-Green-Solder-Mask-ROHS-HBCDD.PDF	CTI	SCL03J000323001	19/01/2017
REACH-SVHC-224-substances-compliance.pdf	BEIDE	B-R2202A0486	28/02/2022

Table 4-3 Test reports