Represented by:

FIRST Components s.r.l.
www.first-components.com
technical@first-components.com
+39 0332 1888005

DMG48480F021_01WTC
DMG48480F021_01WTCZ01
DMG48480F021_01WTCZ02

Features:

- **Based on T5L0, running DGUS II system.**
- **2.1-inch, 480*480 pixels resolution, 262K colors, IPS-TFT-LCD, wide viewing angle, Circular LCD screen.**
- **LCD and TP full lamination process, with high structural reliability.**
- **Optional TP appearance of black, white and integrated black.**
- **COF structure. The entire core circuit of the smart screen is integrated on the FPC of LCM, featured by light and thin structure, low cost and easy production.**
- **50 pins interfaces, including IO, UART, CAN, AD, PWM from CPU core for easy secondary development.**



DMG48480F021_01WTC



DMG48480F021_01WTCZ01

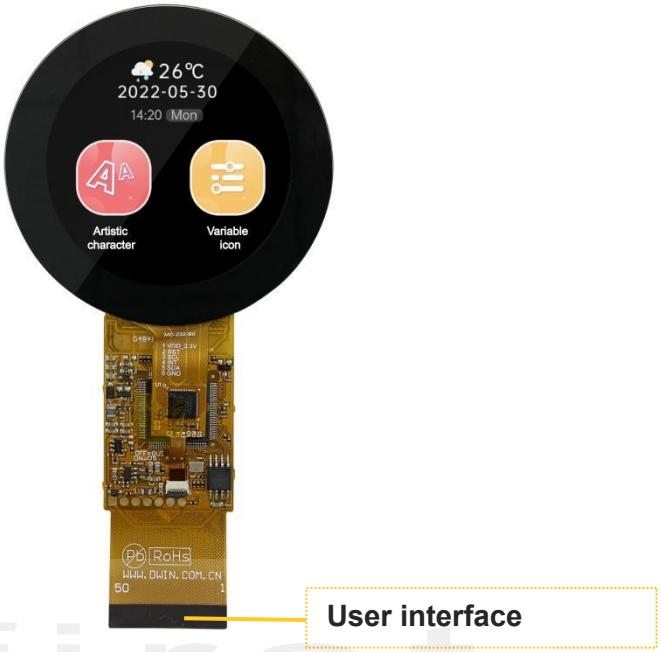


DMG48480F021_01WTCZ02



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1 External Interface



PIN	Definition	I/O	Functional Description
1	+5V	I	Power supply, DC3.6-5.5V.
2	+5V	I	
3	GND	GND	GND
4	GND	GND	
5	GND	GND	
6	AD7	I	5 input ADCs. 12-bit resolution in case of 3.3V power supply. 0-3.3V input voltage. Except for AD6, the rest data is sent to OS core via UART3 in real time with 16KHz sampling rate. AD1 and AD5 can be used in parallel, and AD3 and AD7 can be used in parallel, which equals to two 32KHz sampling AD. AD1, AD3, AD5, AD7 can be used in parallel, which equals to a 64KHz sampling AD; the data is summed 1024 times and then divided by 64 to obtain a 64Hz 16bit AD value by oversampling.
7	AD6	I	
8	AD5	I	
9	AD3	I	
10	AD1	I	
11	+3.3	O	3.3V output, maximum load of 150mA.
12	SPK	O	External MOSFET to drive buzzer or speaker. The external 10K resistor should be pulled down to the ground to ensure that power-on is low level.
13	SD_CD	IO	SD/SDHC interface,The SD_CK connects a 22pF capacitor to GND near the SD card interface.
14	SD_CK	O	
15	SD_D3	IO	
16	SD_D2	IO	
17	SD_D1	IO	
18	SD_D0	IO	
19	PWM0	O	2 16-bit PWM output. The external 10K resistor should be pulled down to the ground to ensure that power-on is low level. The OS core can be controlled in real time via UART3.
20	PWM1	O	
21	P3.3	IO	If using RX8130 or SD2058 I2C RTC to connect to both IOs, SCL should be connected to P3.2,and SDA connected to P3.3 in parallel with 10K resistor pull-up to 3.3V.
22	P3.2	IO	

23	P3.1/EX1	IO	It can be used as an external interrupt 1 input at the same time, and supports both low voltage level or trailing edge interrupt modes.
24	P3.0/EX0	IO	It can be used as an external interrupt 0 input at the same time, and supports both low voltage level or trailing edge interrupt modes.
25	P2.7	IO	IO interface
26	P2.6	IO	IO interface
27	P2.5	IO	IO interface
28	P2.4	IO	IO interface
29	P2.3	IO	IO interface
30	P2.2	IO	IO interface
31	P2.1	IO	IO interface
32	P2.0	IO	IO interface
33	P1.7	IO	IO interface
34	P1.6	IO	IO interface
35	P1.5	IO	IO interface
36	P1.4	IO	IO interface
37	P1.3	IO	IO interface
38	P1.2	IO	IO interface
39	P1.1	IO	IO interface
40	P1.0	IO	IO interface
41	UART4_TXD	O	UART4
42	UART4_RXD	I	
43	UART5_TXD	O	UART5
44	UART5_RXD	I	
45	P0.0	IO	IO interface
46	P0.1	IO	IO interface
47	CAN_TX	O	CAN interface (External CAN chip drive is required.See 6 - (6) for circuit reference)
48	CAN_RX	I	
49	UART2_TXD	O	UART2（UART0 serial port of OS core)
50	UART2_RXD	I	

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2 Specification Parameters

2.1 Product Parameters

Main Chip	T5L0
User Interface	50Pin_0.5mm FPC
FLASH	8M Bytes
UI Version	DGUSII / TA
Power Supply	HDL662S adapter board power supply
Display Color	262K colors
Dimensions	2.1 inch
Resolution	480*480
Active Area	53.28mm (W)×53.28mm (H)
Viewing Angle	Wide viewing angel, typical value of 85° /85° /85° /85° (L/R/U/D)
Backlight Service Life	＞10000 hours (Time of the brightness decaying to 50% on the condition of continuous working with the maximum brightness)
Brightness	350nit（WTC） 350nit（WTCZ01） 50nit（WTCZ02）
Brightness Control	0~100 grade (When the brightness is adjusted to 1%~30% of the maximum brightness, flickering may occur and is not recommended to use in this range)
Type	CTP (Capacitive Touch Panel)
Structure	G+FF structure
Touch Mode	Single point touch, support continuous sliding touch
Surface Hardness	6H
Light Transmittance	Over 90%
Life	Over 1,000,000 times touch

2.2 Interface Parameters

Item	Conditions	Min	Typ	Max	Unit
Baud Rate	User Set (Configure the CFG file)	3150	115200	3225600	bps
Output Voltage(TXD)	Output 1	3.0	3.3	-	V
	Output 0	-	0	0.3	V
Input Voltage(RXD)	Input 1	-	-	3.3	V
	Input 0	0	-	0.5	V
Interface	UART2: TTL; UART4: TTL;（Only available after OS configuration） UART5: TTL;（Only available after OS configuration）				
Data Format	UART2: N81; UART4: N81/E81/O81/N82;4 modes (OS configuration) UART5: N81/E81/O81/N82;4 modes (OS configuration)				

2.3 Electrical specifications

Rated Power	<2W	
Operating Voltage	3.6~5.5V, typical value of 5V	
Operating Current	180mA	VCC=5V, max backlight
	110mA	VCC=5V, backlight off
Recommended power supply: 5V 0.5A DC		

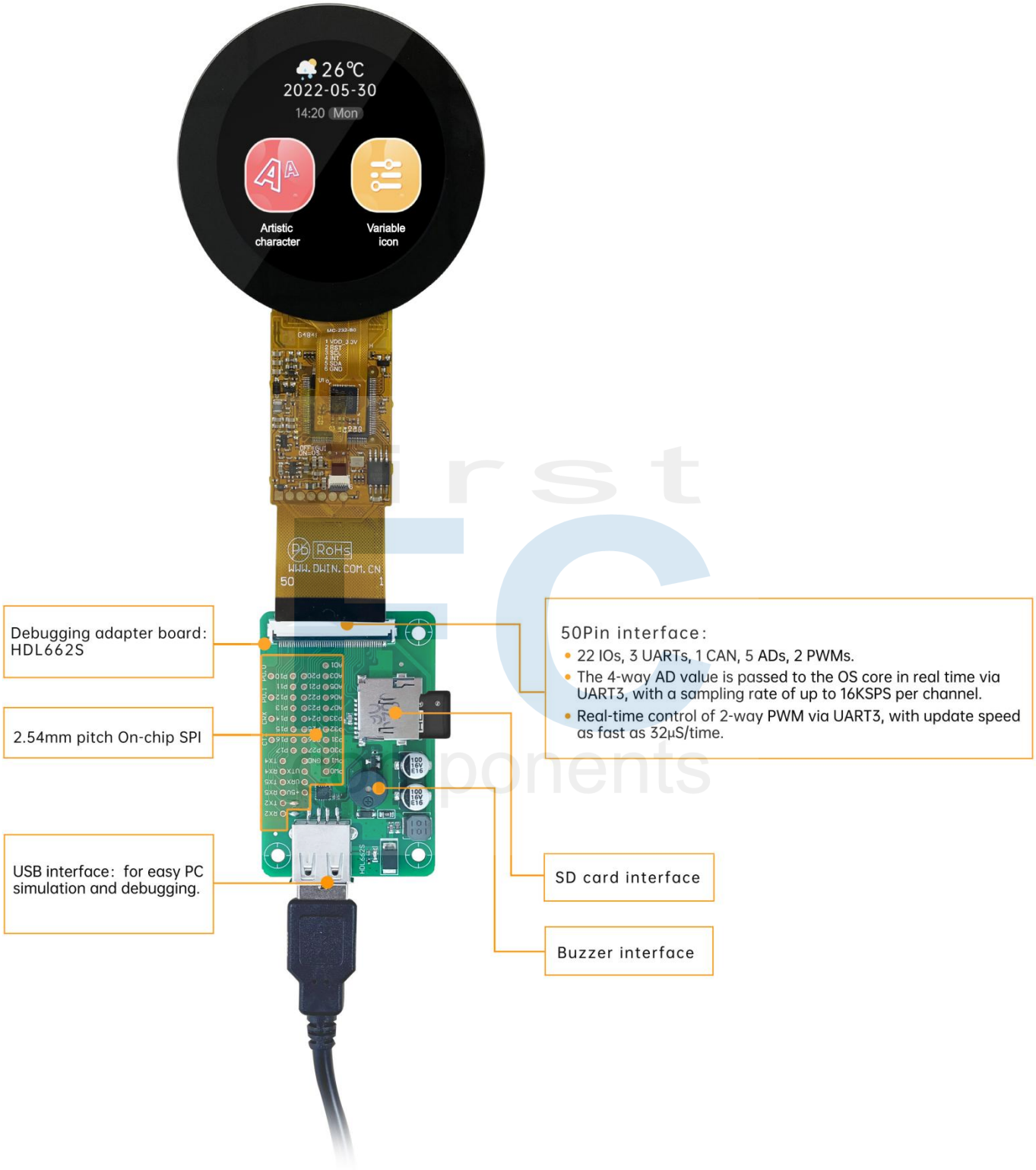
2.4 Operating Environment

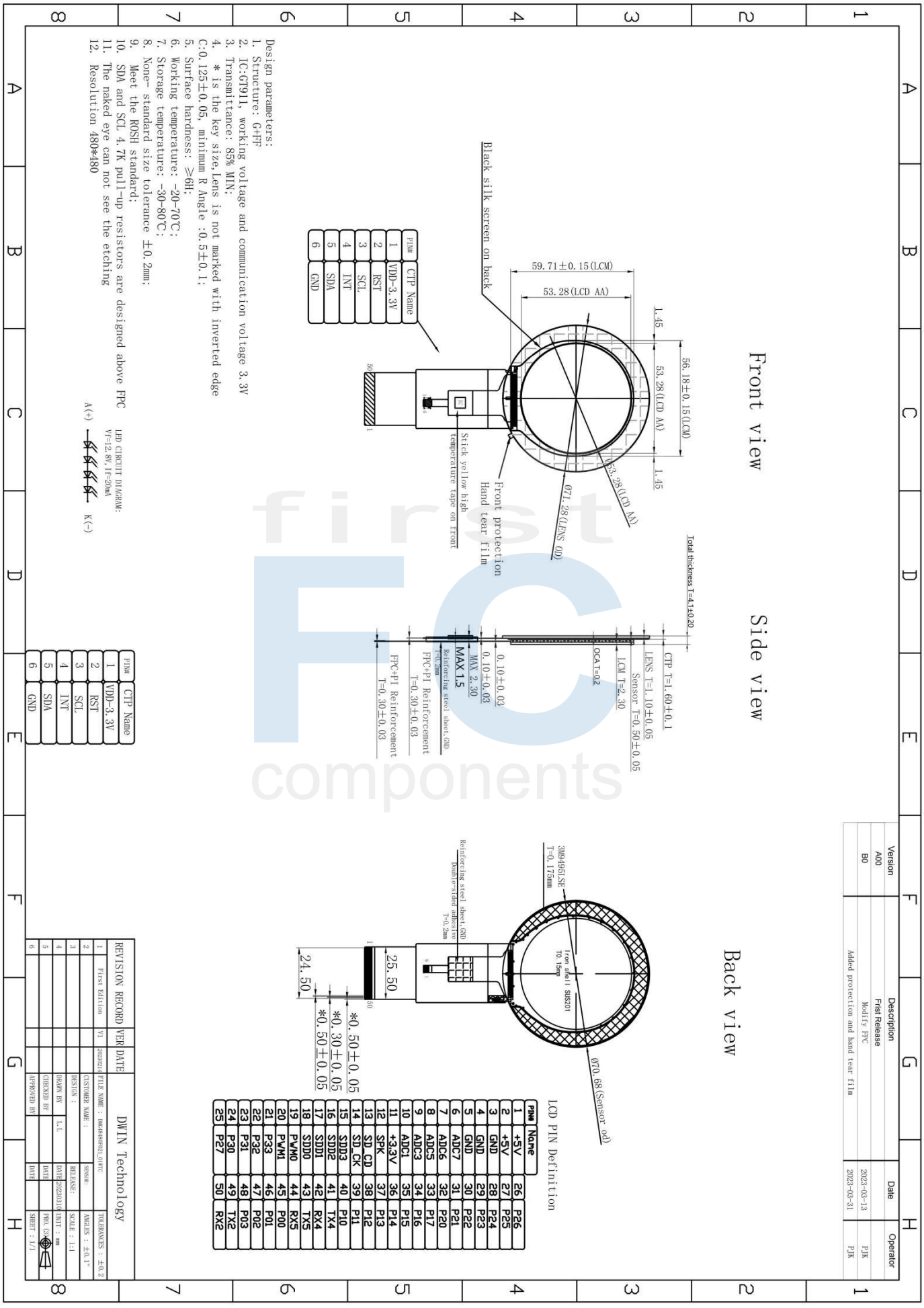
Operating Temperature	-10℃~60℃
Storage Temperature	-20℃~70℃
Operating Humidity	10%~90%RH, typical value of 60% RH

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4 Debug

It is recommended for new users of DWIN smart LCMs to purchase official accessories. For more details, please refer to customer service center.




Front view
Side view
Back view
Black silk screen on back
59.71±0.15(LCM)
53.28(LCD AA)
56.18±0.15(LCM)
Front protection
Hand tear film
Stick yellow high temperature tape on front
Total thickness T=4.14±0.20
CTP T=1.60±0.1
LENS T=1.10±0.05
Sensor T=0.50±0.05
LCM T=2.30
OCA T=0.2
0.10±0.03
MAX 2.30
MAX 1.5
FPC+PI Reinforcement T=0.30±0.03
Reinforcing steel sheet,GND T=0.2mm
3M9495LSE T=0.175mm
Iron shell SUS201 T0.15mm
Ø70.68(Sensor od)
25.50
24.50
*0.50±0.05
*0.30±0.05
*0.50±0.05
LED CIRCUIT DIAGRAM:
VF=12.8V,IF=20mA
A(+)
K(-)
LCD PIN Definition
Design parameters:
1. Structure: G+FF
2. IC:GT911, working voltage and communication voltage 3.3V
3. Transmittance: 85% MIN;
4. * is the key size,Lens is not marked with inverted edge C:0.125±0.05, minimum R Angle :0.5±0.1;
5. Surface hardness: ≥6H;
6. Working temperature: -20~70℃;
7. Storage temperature: -30~80℃;
8. None- standard size tolerance ±0.2mm;
9. Meet the ROSH standard;
10. SDA and SCL 4.7K pull-up resistors are designed above FPC
11. The naked eye can not see the etching
12. Resolution 480*480
DWIN Technology
REVISION RECORD
First Edition
Version
Description
Date
Operator
A00 Frist Release 2023-03-13 PJK
B0 Modify FPC
Added protection and hand tear film 2023-03-31 PJK

8 Revision records

Rev	Revise Date	Content	Editor
00	2023-04-24	First Edition	Xu Ying

first FC components
+39 0332 1888005
+39 0332 320856
info@first-components.com
Via 2 Giugno, 20 – 21022 Azzate (VA) Italy
VAT number IT02764420127
REA Varese 285686
Social capital fully paid 100.000€