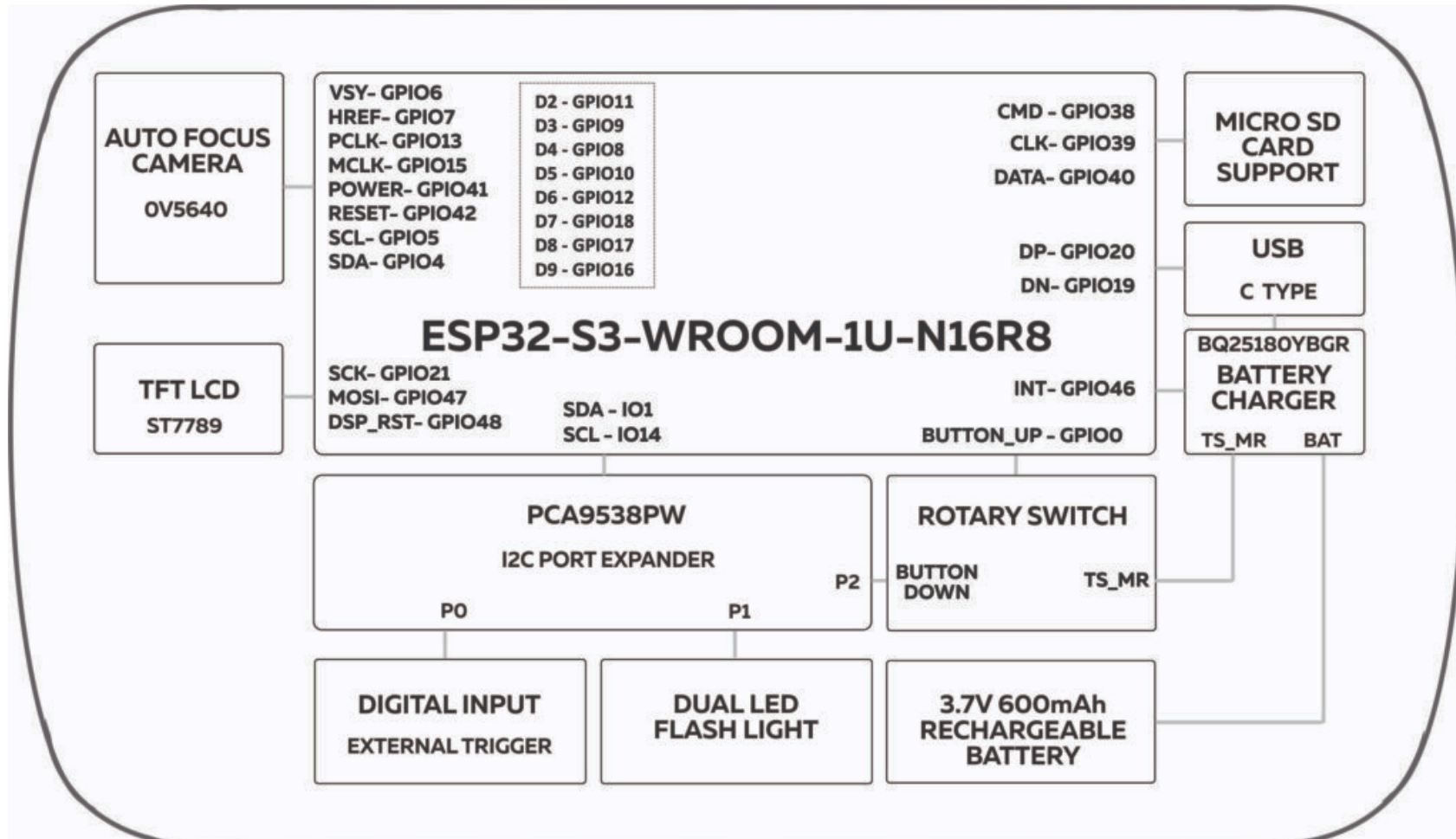


NORVI AI OPTIC -DATASHEET



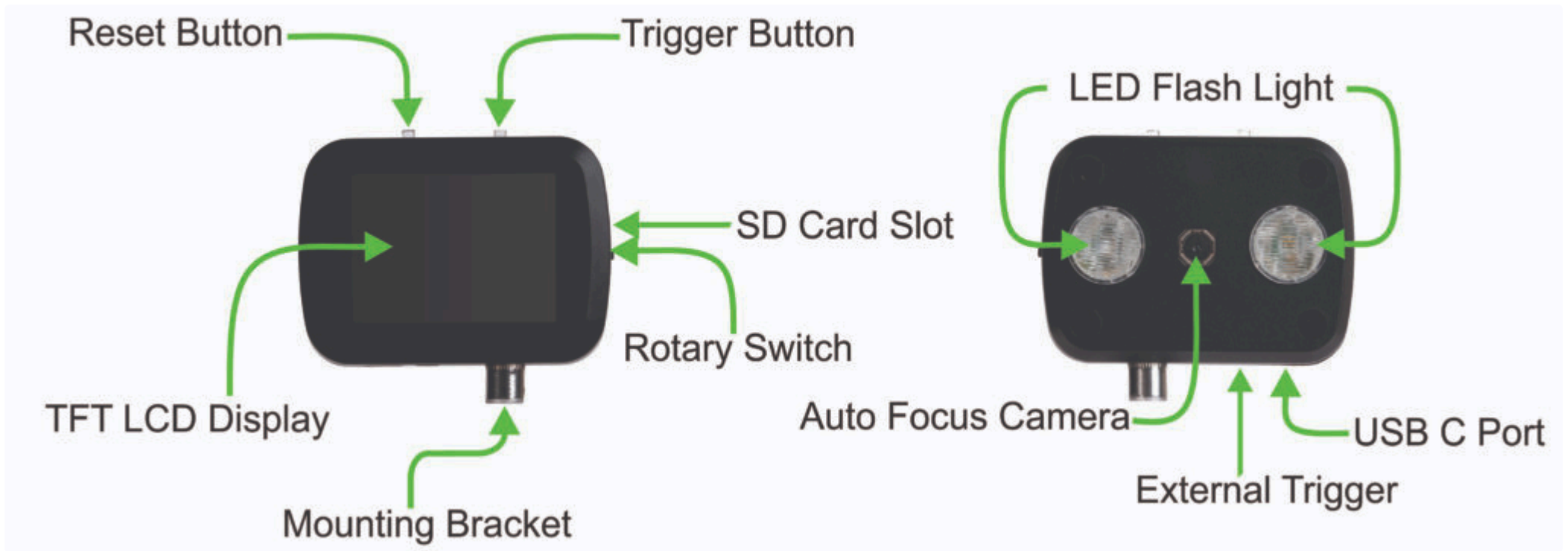
Product Features



- ESP32 S3 WROOM Chip with 16MB Flash and 8MB PSRAM

- OV5640 Auto Focus Camera
- 2 inch LCD Display
- Built in 600mAh Backup battery
- Dual LED Flash Light
- micro SD Card Support
- Joystick toggle switch
- External Trigger Dry Contact Input
- USB C Power and Programming





Main

Range of Product	INDUSTRIAL CAMERA
Product Type	NORVI AI OPTIC
Certifications	EN 61131-2:2007 EN 61010-1:2010+A1:2019 EN IEC 61010-2-201:2018 2014/30/EU- Electromagnetic Compatibility (EMC) Annex III, Part B, Module C
Rated supply voltage	24V DC
Communication	WiFi
Inputs and Outputs	1 x Input

Displays and Visual Indicators	TFT Display and Flash Led
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Complementary

Product Unified Code	NORVI AI OPTIC
Product Part Numbers	NORVI AI OPTIC

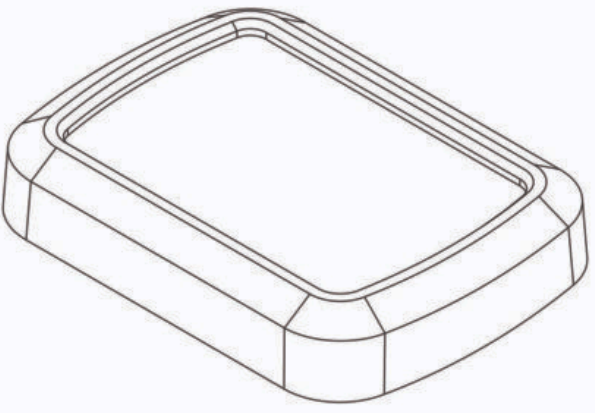
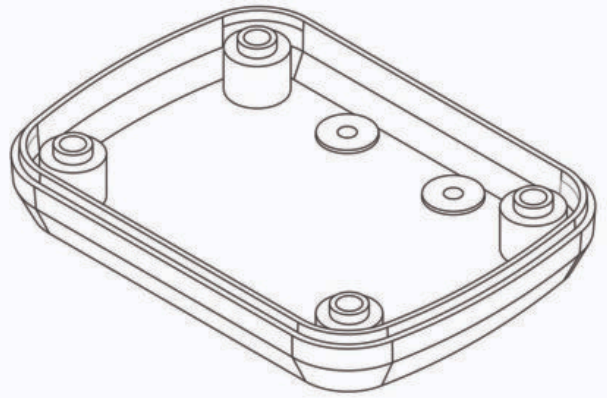
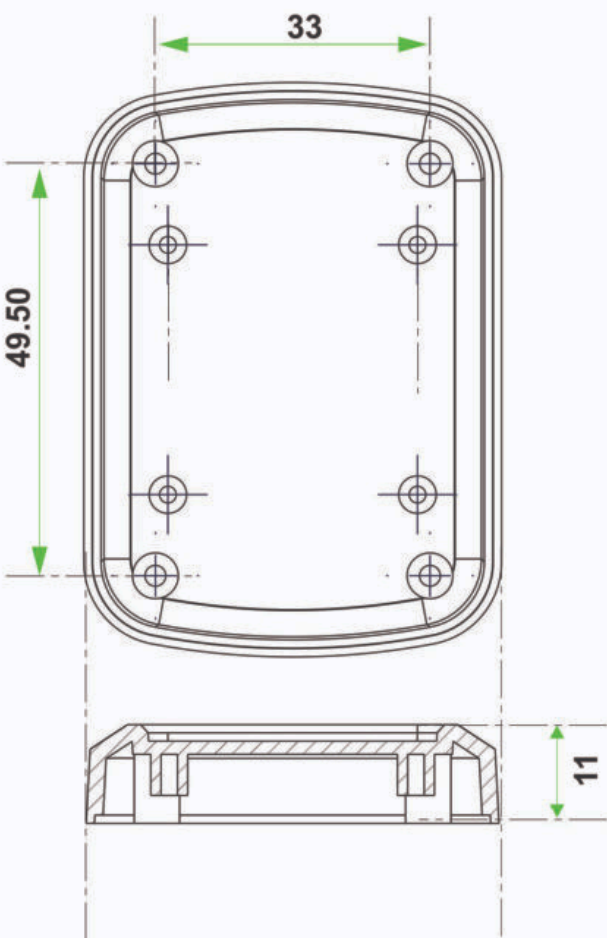
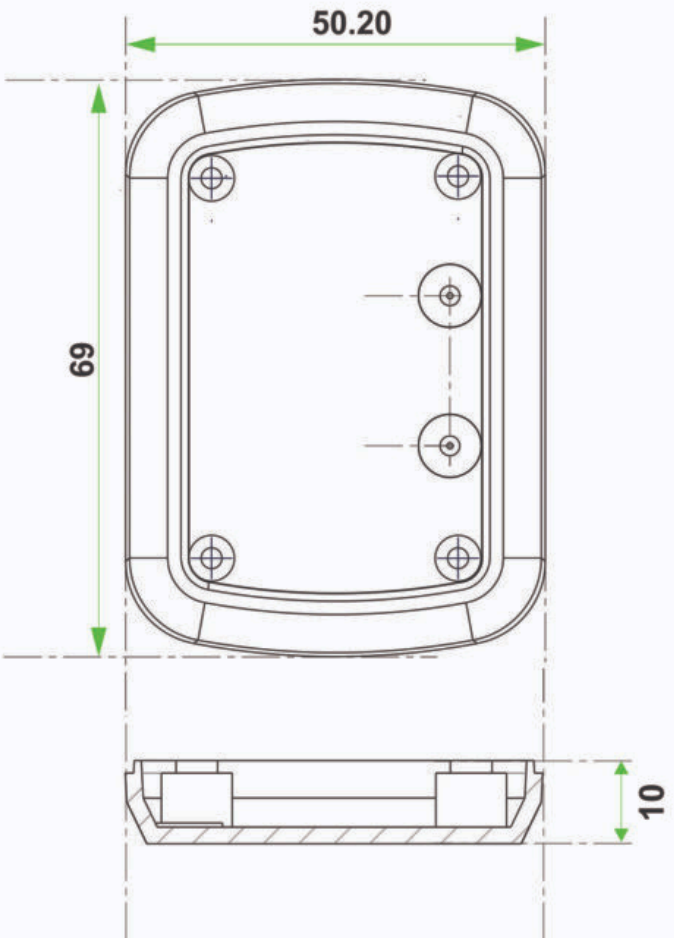
Mechanical Properties

Enclosure	HH-042
Mounting / Installation Method	Screw type female holder
Length	50 mm
Height	69 mm
Width	21 mm

Environment

IP degree of protection	IP20
Operating altitude	0 – 2000 meters
Operating Temperature	– –10 ... +85° C

Storage altitude	0 – 3000 meters
Shock resistance	15 gn for 11ms
Resistance to electrostatic discharge	4kV on contact 8kV on air
Resistance to electromagnetic fields	10 V/m (80 MHz 1GHz) 3 V/m (1.4 MHz 2 GHz) 1 V/m (2 MHz 3 GHz)



Processing

SOC / MCU	ESP32-S3-WROOM-1U-N16R8
Flash Memory	16MB
ROM	384 KB
SRAM	512 KB
PSRAM	8 OSPI

Battery Charger

Module	BQ25180YBGR
Product Type	linear battery charger IC
Battery Type	Lithium-ion, Lithium Polymer Rechargeable Battery
Nominal Voltage	3.7V
Charging Voltage	5V
Output Current:	1 A
Rated Capacity	600mAh
BAT	Battery +
TS_MR	Push (Rotary Switch)
INT	GPIO46

GND	Battery –
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Peripherals

IO Expander

Module	PCA9536DGKR
SCL	GPIO14
SDA	GPIO1
P0	TRIGGER
P1	LED_FLASH (LED FlashLight)
P2	BUTTON_DOWN (Switch)

Micro SD Card Support

Card Type	micro SD
Interface	SPI
CMD	GPIO38
CLK	GPIO39
DATA	GPIO40

USB Port

Port Type	USB C
DP1/DP2	GPIO20
DN1/DN2	GPIO19

LED Flashlight

Module	WL-3P3535EP120CW-W
Product Type	High Power LED
Color	White
Continuous Forward Current	700mA
Maximum Forward Voltage	3.6V
Power Dissipation	3W
LED_FLASH (Cathode)	Via PCA9536DGKR – P1 SCL2 – GPIO14 SDA2 – GPIO1

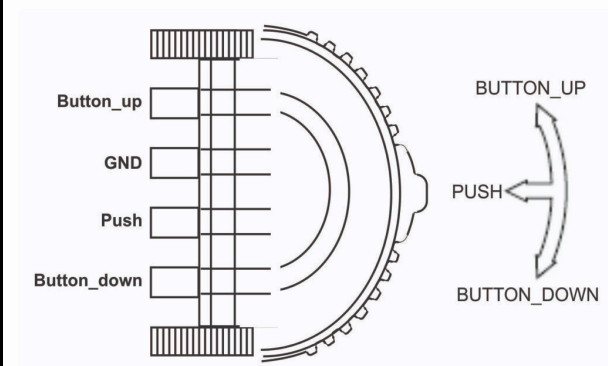
Camera

Module	OV5640-AF
Features	Auto Focus
Resolution	5MP

SDA	GPIO4
SCL	GPIO5
VSYNC	GPIO6
HREF	GPIO7
MCLK	GPIO15
PCLK	GPIO13
POWER	GPIO41
RESET	GPIO42
D2	GPIO11
D3	GPIO9
D4	GPIO8
D5	GPIO10
D6	GPIO12
D7	GPIO18
D8	GPIO17
D9	GPIO16

Rotary Switch

Module	SLLB510100
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Rating (max.) / (min.) (Resistive load)	10mA 5V DC/50μA 3V DC
Push	TS_MR (Charger IC)
Button_up	GPIO0
Button_down	Via PCA9536DGKR – P2 SCL2 – GPIO14 SDA2 – GPIO1
Terminal Arrangement	

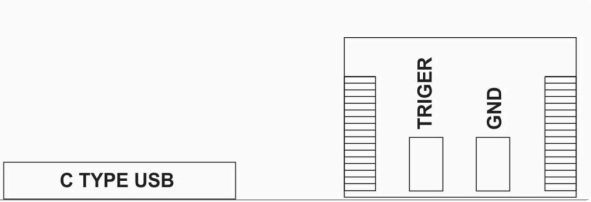
Display

Display Driver	ST7789
Display Type	TFT LCD Display
Display Size	2.1 inches
Resolution	240×320 Pixels
DSP_CS	GPIO44
RS	GPIO43

DSP_RST	GPIO48
MOSI	GPIO47
SLK	GPIO21

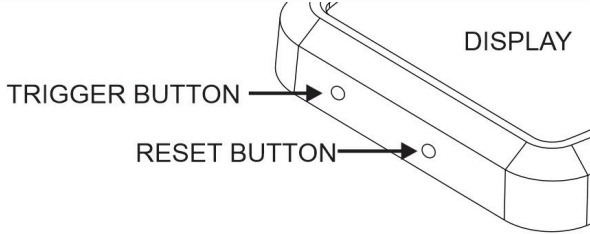
INPUTS and OUTPUTS

Digital Input (External Trigger)

Number of Digital Inputs	1
Connector Type	SM02B-SRSS-TB(LF)(SN)
Digital Input Maximum Ratings	3.3V DC / Pull Down to GROUND
Trigger	Via PCA9536DGKR – P0 SCL2 – GPIO14 SDA2 – GPIO1
Terminal Arrangement	 <p>The diagram shows a terminal block with a C TYPE USB connector on the left, a TRIGGER pin in the center, and a GND pin on the right. The TRIGGER and GND pins are connected to the PCA9536DGKR module.</p>

Reset and Trigger

Reset_EN	ESP32 Enable
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Trigger	Via PCA9536DGKR – P0 SCL2 – GPIO14 SDA2 – GPIO1
Button Arrangement	 <p>The diagram shows a perspective view of a rectangular device. At the top right corner, there is a curved section labeled 'DISPLAY'. Along the bottom edge, there are two circular buttons. The left button is labeled 'TRIGGER BUTTON' with an arrow pointing to it. The right button is labeled 'RESET BUTTON' with an arrow pointing to it.</p>

GPIO Map

Pin No	GPIO	Description	Usage
1	GND	GND	GND
2	3.3v	Power supply	3.3v
3	Enable	HIGH at boot	Reset Button
4	4	I2C	SDA
5	5	I2C	SCL
6	6	Camera	VSYNC
7	7	Camera	HREF
8	15	Camera	MCLK
9	16	Camera	D9
10	17	Camera	D8

11	18	Camera	D7
12	8	Camera	D4
13	19	USB Port	DN1/DN2
14	20	USB Port	DP1/DP2
15	3		
16	46	Battery Charger	INT
17	9	Camera	D3
18	10	Camera	D5
19	11	Camera	D2
20	12	Camera	D6
21	13	Camera	PCLK
22	14	IO Expander	SCL2
23	21	Display	SCLK
24	47	Display	MOSI
25	48	Display	DSP_RST
26	45		
27	0	Switch	Button_up
28	35		
29	36		
30	37		

31	38	SD Card	CMD
32	39	SD Card	CLK
33	40	SD Card	DATA
34	41	Camera	POWER
35	42	Camera	RESET
36	44	Display	DSP_CS
37	43	Display	RS
38	2	Power	EN
39	1	IO Expander	SDA2