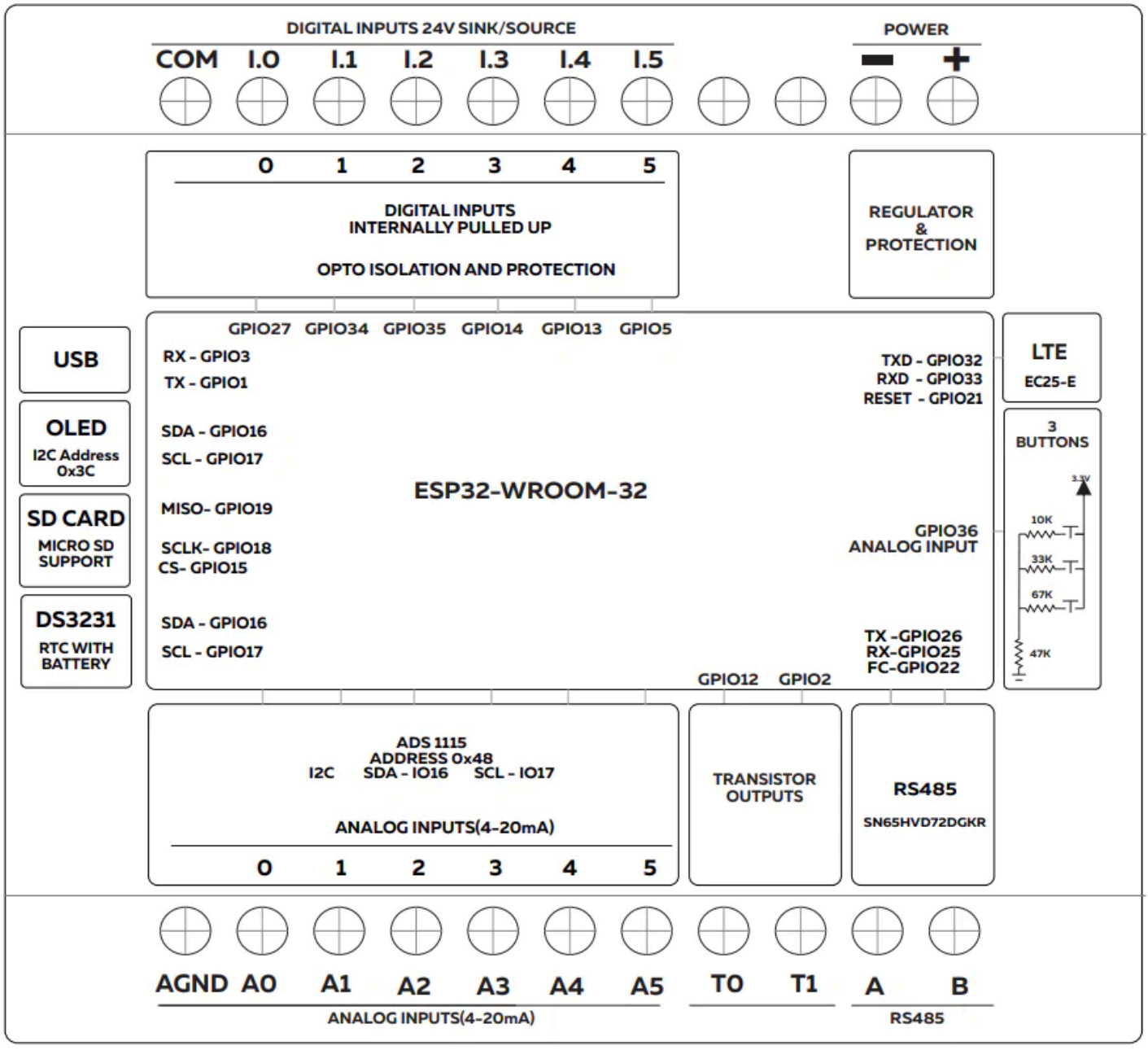
NORVI GSM-AE04-I-L – DATASHEET

Product Features



- ESP32-WROOM32 Module
- LTE Connection
- Built-in 0.96 OLED Display
- microSD Card Support
- DS3231 RTC with Battery Backup
- Built-in Button on front panel
- Digital Inputs
- Transistor Outputs
- Analog Inputs

- DIN-Rail mount

Cellular Communication LTE1

- Module – QUECTEL EC25
- Brand Name – QUECTEL
- FCC ID 2AQ9M-SIM7500
- TAC – 86675804

Cellular Communication LTE2

- Module – SIM7500
- Brand Name – SIMCom
- FCC ID 2AQ9M-SIM7500
- TAC – 86147503

Expansions Supported

- Analog Input
- Digital Input
- Transistor Output
- Relay Output
- Analog Output

Main

Range of Product	NORVI GSM
Product type	Programmable Controller
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 / Bluetooth LTE / EDGE – Quectel EC25 LTE2 / EDGE – SIMCOM SIM7500 RS-485

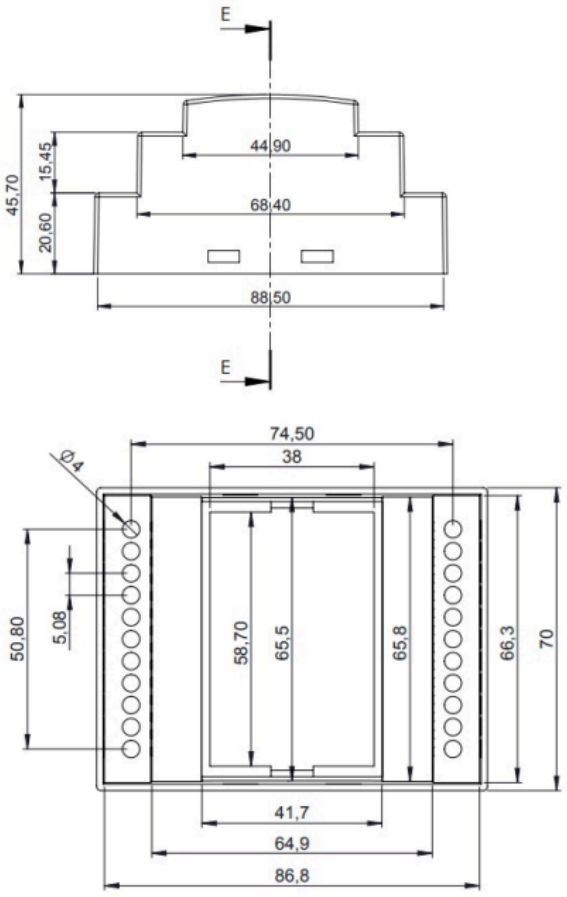
Inputs and Outputs	6 x Digital Inputs 6 x Analog Inputs with 4–20 mA 2 x Transistor Outputs
Displays and Visual Indicators	0.96 OLED Display and Indicators

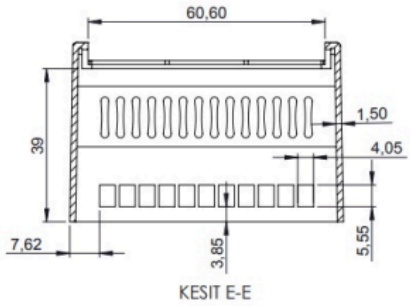
Complementary

Product Unified Code	NORVI GSM -AE04-I-L
Product Part Numbers	NORVI GSM-AE04-I-L

Mechanical Properties

Enclosure	NORVI 204
Mounting / Installation Method	DIN RAIL / MOUNTING TABS
Terminal Type	SCREW TERMINAL
Terminal Arrangement	Top and Bottom
Length	90.50 mm
Height	56.60 mm
Width	60.60 mm





Environment

IP degree of protection	IP20
Operating altitude	0–2000 meters
Operating Temperature	– -10… +85° C (14…185 °F)
Storage altitude	0–3000 meters
Shock resistance	15 gn for 11ms
Resistance to electrostatic discharge	4 kV on contact 8 kV 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)

Electrical Characteristics

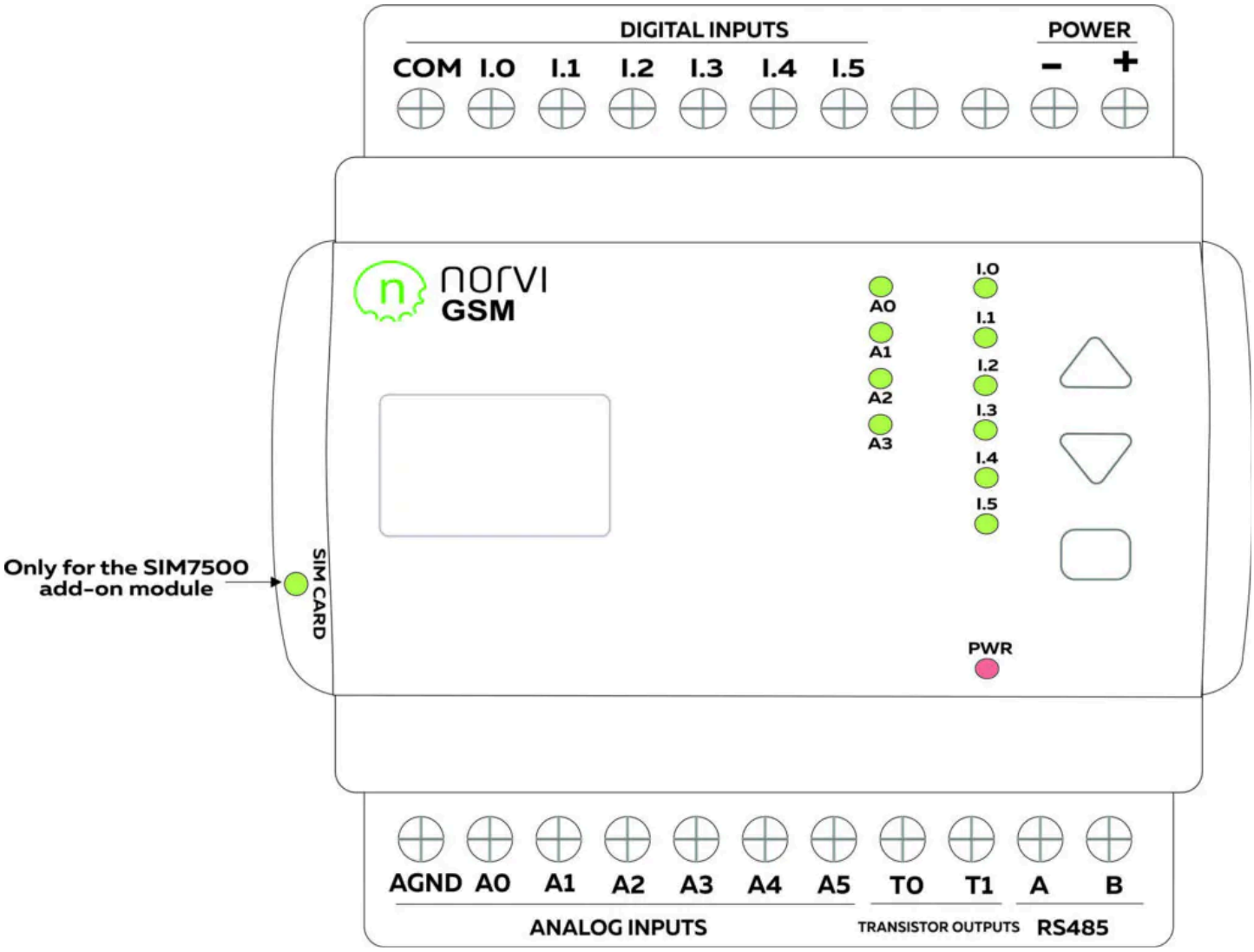
Grid Powered Devices

Rated Supply Voltage (V)	24V DC
Current Consumption (mA)	400mA
Recommended Power Source	1A, 24V DC

Processing

SOC / MCU	ESP32-WROOM32
Flash Memory	4MB
ROM	448 KB
SRAM	520 KB
PSRAM	NOT AVAILABLE

Indicator Layout



Peripherals

microSD Card support

Card Type	microSD
Interface	SPI
SD CARD CS	GPIO15
MISO	GPIO19
MOSI	GPIO23
SCLK	GPIO18
SD Detect	NOT CONNECTED

Internal RTC

RTC Chip	DS3231
Backup Battery Type	CR2032
Interface	I2C
I2C Address	0x68
SCL Pin	GPIO17
SDA Pin	GPIO16

Built-in Buttons

Button 1 Pin	GPIO36 Analog Input Level 1
Button 2 Pin	GPIO36 Analog Input Level 2
Button 3 Pin	GPIO36 Analog Input Level 3

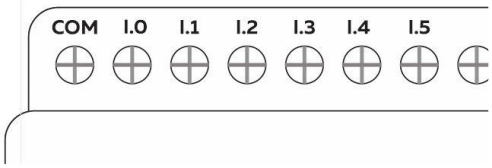
OLED Display

Display Driver	SSD1306
Display Size	0.96 inch
SCL Pin	GPIO17
SDA Pin	GPIO16
RESET Pin	NOT CONNECTED

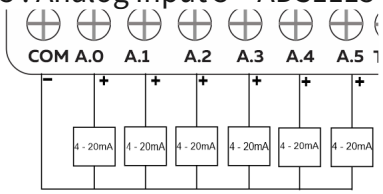
INPUTS and OUTPUTS

Digital Inputs

Number of Digital Inputs	6
Digital Input Polarity	Sink and Source
Digital Input Maximum Voltage	32V DC
Digital Input Minimum Voltage	18V DC
Maximum Switching Frequency	1 kHZ

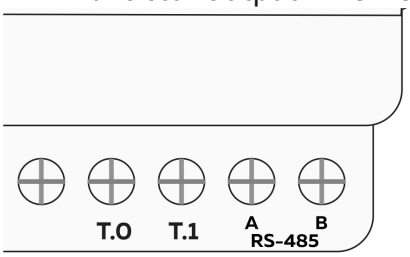
Terminal Arrangement	Digital Input 0 – GPIO27 Digital Input 1 – GPIO34 Digital Input 2 – GPIO35 Digital Input 3 – GPIO14 Digital Input 4 – GPIO13 Digital Input 5 – GPIO5 

Analog Inputs

Number of Analog Inputs	6
Analog Input Measurement Range	4-20mA
Analog to Digital Converter (ADC)	ADS1115
Analog to Digital Converter (ADC) Communication	I2C
Analog to Digital Converter (ADC) Address	0x48,0x49
Terminal Arrangement	A0 : Analog Input 0 – ADS1115 – 0x48 – AIN0 A1 : Analog Input 1 – ADS1115 – 0x48 – AIN1 A2 : Analog Input 2 – ADS1115 – 0x48 – AIN2 A3 : Analog Input 3 – ADS1115 – 0x48 – AIN3 A4 : Analog Input 4 – ADS1115 – 0x49 – AIN0 A5 : Analog Input 5 – ADS1115 – 0x49 – AIN1 

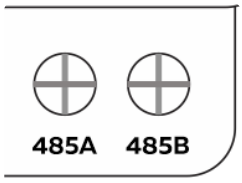
Transistor Outputs

Number of Transistor Outputs	2
Transistor Output Type	OPEN COLLECTOR
Maximum Sink/Source Current (mA)	100mA
Maximum Applicable Voltage	36V DC
Maximum Switching Frequency	1 kHz

Terminal Arrangement	T0 – Transistor Output 0 – GPIO12 T1 – Transistor Output 1 – GPIO2 

Communication Channels

RS-485 Communication

Communication Mode	HALF-DUPLEX
Transceiver	MAX485
Unit Load	1/4
Flow Control / Direction Control Pin	GPIO22
TX Pin	GPIO26
RX Pin	GPIO25
Terminal Arrangement	

LTE Communication

Model of GSM Modem	QUECTEL EC25
FCC ID	XMR202008EC25AFXD
TAC	86675804
RXD	GPIO33
TXD	GPIO32
RESET	GPIO21

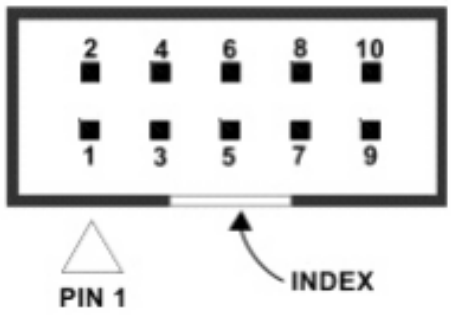
Model of GSM Modem	SIM7500
FCC ID	2AQ9M-SIM7500
TAC	86147503
RXD	GPIO33
TXD	GPIO32
RESET	GPIO21

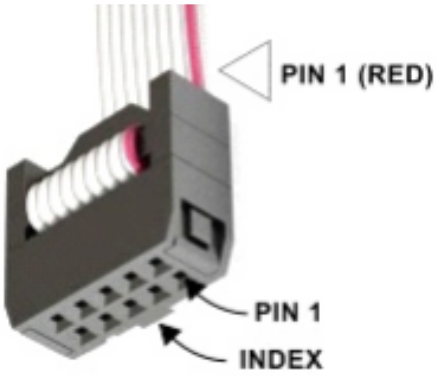
GPIO Map

GPIO	Description	Usage
0	outputs PWM signal at boot	NRST
1	debug output at boot	TX0
2	connected to on-board LED	Transistor Output 1
3	HIGH at boot	RX0
5	input only	Digital Input 5
12	connected to on-board LED	Transistor Output 0
13	input only	Digital Input 4
14	input only	Digital Input 3
15		SD CARD CS
16		SDA
17		SCL
18		SCLK
19		MISO
20		
21		GSM RESET
22		RS485-Flow Control
23		MOSI
25		RS485-RX

26		RS485-TX
27	input only	Digital Input 0
32		GSM TX
33		GSM RX
34	input only	Digital Input 1
35	input only	Digital Input 2
36	input only	Buttons
39		

Expansion Port





PIN	**ESP32 Connection**
1	NOT CONNECTED
2	NOT CONNECTED
3	5V
4	NOT CONNECTED
5	BOOT GPIO0
6	BUTTONS
7	3.3V
8	SCL2 GPIO17
9	GND
10	SDA2 GPIO16