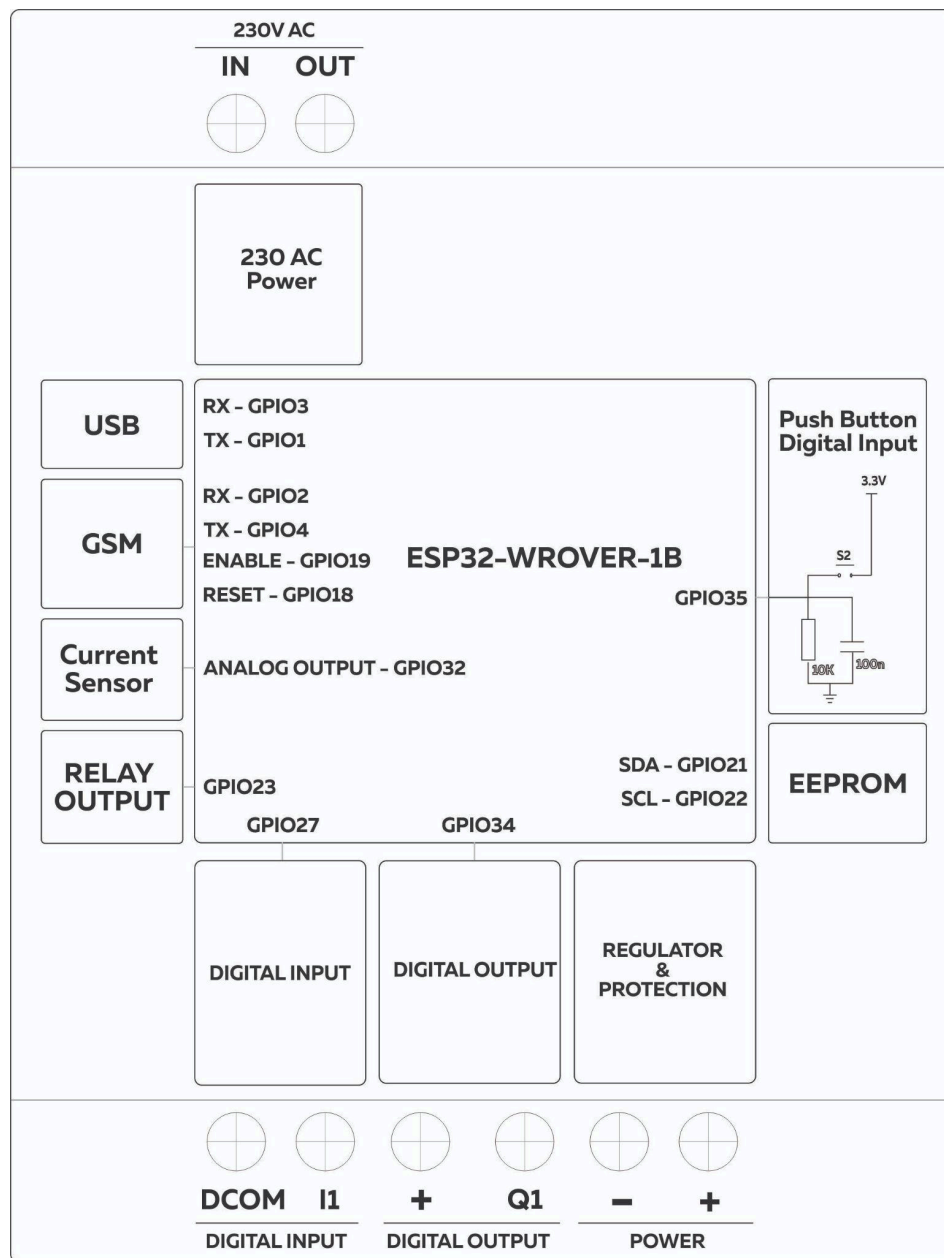


# DATASHEET

NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## Product Features

- ESP32-WROVER-1B Module
- DS3231 RTC with Battery Backup
- Built-in EEPROM
- Current Sensor
- Digital Input
- Digital Output
- Relay Output
- DIN-Rail mount



# DATASHEET

NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## Main

Range of Product	NORVI AGENT 1
Product type	Programmable Node
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	Standard 12V DC 1A
Communication	WiFi / Bluetooth
Inputs and Outputs	1 x Digital Input 1 x Digital Output 1 x Relay Output
Displays and Visual Indicators	LED & RGB

## Complementary

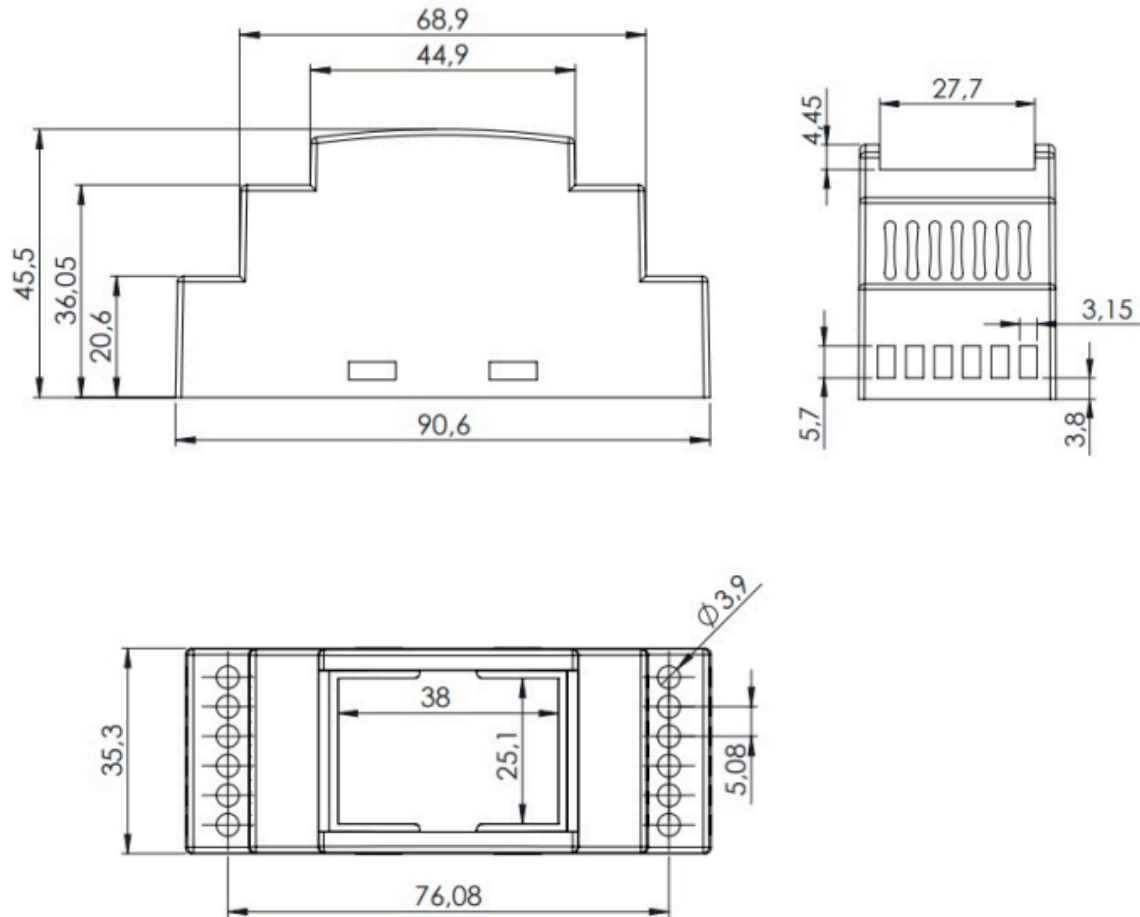
Product Unified Code	NORVI AGENT 1-CST-BT9-E-L
Product Part Numbers	NORVI AGENT 1-CST-BT9-E-L

## Mechanical Properties

Enclosure	NORVI 202
Mounting / Installation Method	DIN RAIL / MOUNTING TABS
Terminal Type	SCREW TERMINAL
Terminal Arrangement	Top and Bottom
Length	59.00 mm
Height	86.00 mm
Width	35.00 mm

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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L



## 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	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)

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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## Electrical Characteristics

### Grid Powered Devices

Rated Supply Voltage (V)	12V DC
Current Consumption (mA)	100mA
Recommended Power Source	1A 12V DC

## Processing

SOC / MCU	ESP32-WROVER-IB
Flash Memory	16 MB
ROM	448 KB
SRAM	520 KB
PSRAM	8 MB

## Internal RTC

RTC Chip	DS3231
Backup Battery Type	CR2032
Interface	I2C
I2C Address	0x68
SCL Pin	GPIO22
SDA Pin	GPIO21

## EEPROM

Module	M24C02-F
I2C bus mode	100 kHz (Standard mode)
Memory	2-Kbit (256-byte) of EEPROM
Page size	16-byte

## Indicators

Module Type	WS2812
Communication	One wire
Connection	GPIO25

## Buttons

Reset	GPIO18
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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## INPUTS and OUTPUTS

### Digital Input

Number of Digital Inputs	1
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	GPIO27

### Digital Output

Number of Digital Outputs	1
Digital Output Voltage	12V DC
Terminal Arrangement	GPIO34

### Push Button Digital Input

Number of Button Inputs	1
GPIO Arrangement	GPIO35

### Relay Output

Number of Relay Outputs	1
Relay Module	RT314012F
GPIO Arrangement	GPIO23
Contact Current Rating (Resistive)	12 A 250V AC

### LTE Communication

Modem Model	BC25 / SIM7020-E
Baud rate	9600
GSM RX	GPIO2
GSM TX	GPIO4
GSM ENABLE	GPIO19 (generally remains in a HIGH state)
GSM RESET	GPIO18 (generally remains in a HIGH state)

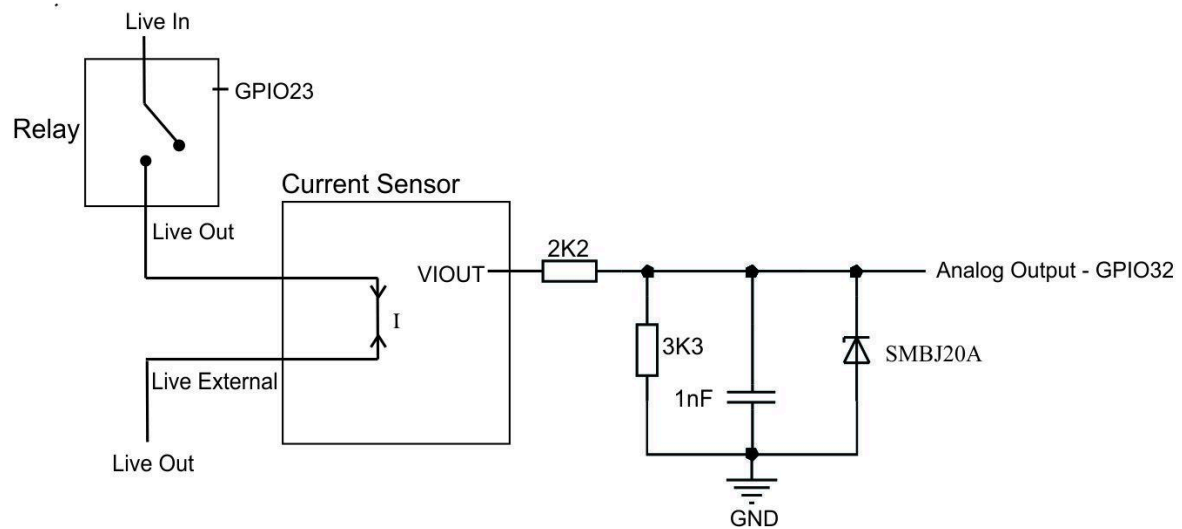
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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## Current Sensor

Sensor IC	ACS712ELCTR-20A-T
Single supply operation voltage	5V
Current SensingRange	+/- 20A
GPIO Arrangement	Analog Output - GPIO32

## Attenuation Network of the Current Sensor



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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

## GPIO Map

GPIO	Description	Usage
0	NRST	
1	USB to Serial	TX0
2	LTE	RX
3	USB to Serial	RX0
4	LTE	TX
18	LTE	RESET
19	LTE	ENABLE
21		SDA
22		SCL
23	Output only	Relay Output
25	Indicators	RGB LED
27	input only	Digital Input
32	Current Sensor	Analog Output
34	Output only	Digital Output
35	input only	Push Button Digital Input

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NORVI CONTROLLERS  
NORVI AGENT 1-CST-BT9-E-L

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