

Product datasheet

Characteristics

NORVI

Agent 1

BM01 Series

3 Digital Inputs
3 Analog inputs 0 - 10V
1 RS-485 Communication

BT01 Series

3 Digital Inputs
3 Analog inputs 0 - 10V
2 Transistor outputs

BT05 Series

3 Digital Inputs
2 Analog inputs 0 - 10 V
1 Relay output

Optional

micro SD card support
DS3231 RTC with battery backup

BM02 Series

3 Digital Inputs
3 Analog inputs 4 - 20mA
1 RS-485 Communication

BT02 Series

3 Digital Inputs
3 Analog inputs 4 - 20mA
2 Transistor outputs

BT06 Series

3 Digital Inputs
2 Analog inputs 4 - 20mA
1 Relay output

BT03 Series

3 Digital Inputs
2 Thermocouple inputs
2 Transistor outputs



Communication Options



Main

Range of product	NORVI Agent 1
Product type	Programmable node
Rated supply voltage	Standard 6 - 36V DC / Low Power : 3.3 - 6V DC
Field of Application	Monitoring and controlling
Discrete Input number	3
Discrete Input Voltage	18 - 24 V DC
Analog input number	3
Analog input range	0 - 10V DC / 0 - 20 mA (depending on model)
Communication	RS-485 (applicable or BE-Series only)
Analog input range	0 - 10V DC / 0 - 20 mA (depending on model)
Analog input controller	16 bit with PGA ADS-1115
Discrete output type	Transistor (applicable or BE-Series only)
Discrete output number	2 Transistor outputs
Discrete output voltage	24V DC for transistor output

Complementary

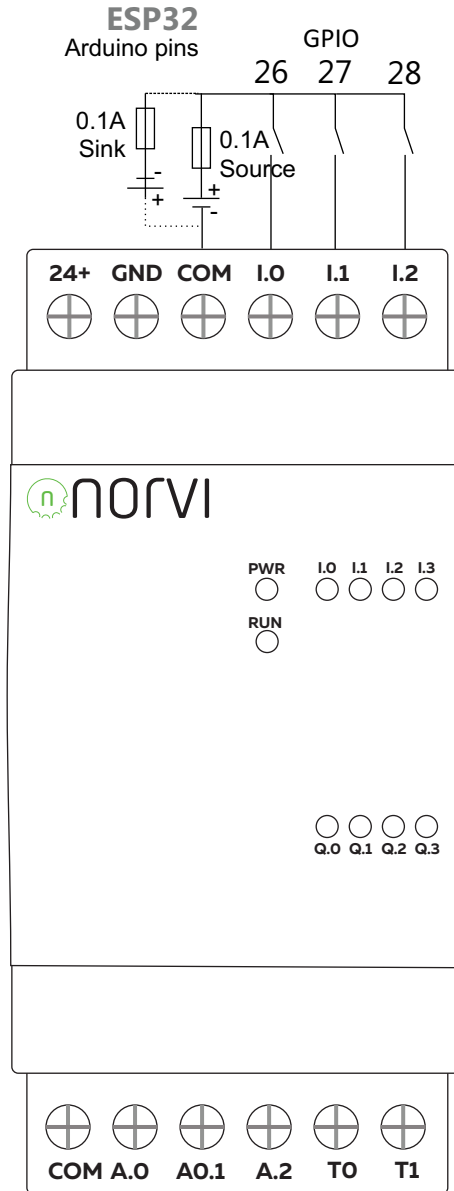
Local signalling	1 LED green for PWR 4 LED red for Digital Inputs 1 WS2812 pixel RGB Led
Electrical connection	Removable screw terminal block for inputs and outputs (pitch 5.08 mm)
Mounting support	Top hat type TH35-15 rail conforming to IEC 60715 Top hat type TH35-7.5 rail conforming to IEC 60715
Height	86.00 mm
Depth	59.00 mm
Width	35.00 mm
Product weight	0.91 Kg

Environment

Relative humidity	10....95% without condensation in operation
IP degree of protection	IP20
Operating altitude	0...2000m
Storage altitude	0...3000m
Shock resistance	15 gn for 11 ms
Operating temperature	-40 to +85 'C

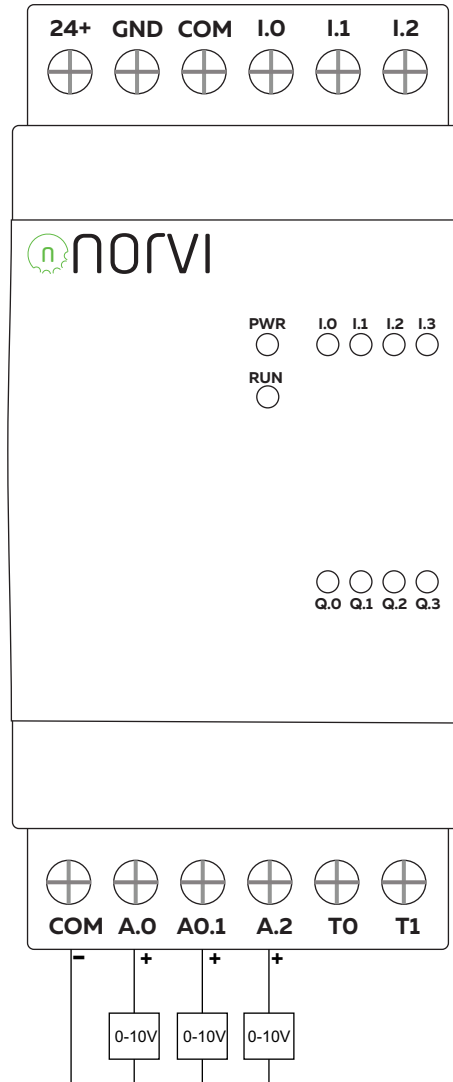
Digital inputs wiring diagram

24V DC Sink/Source

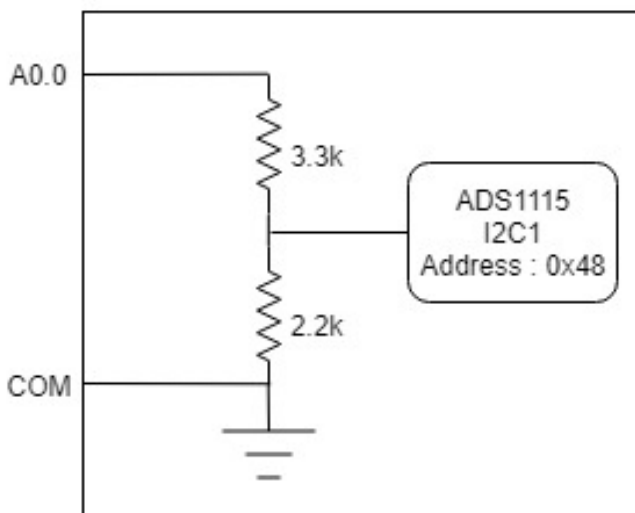


Analog Inputs wiring diagram

0 - 10 V DC



0 - 10 V input to 0 - 4V

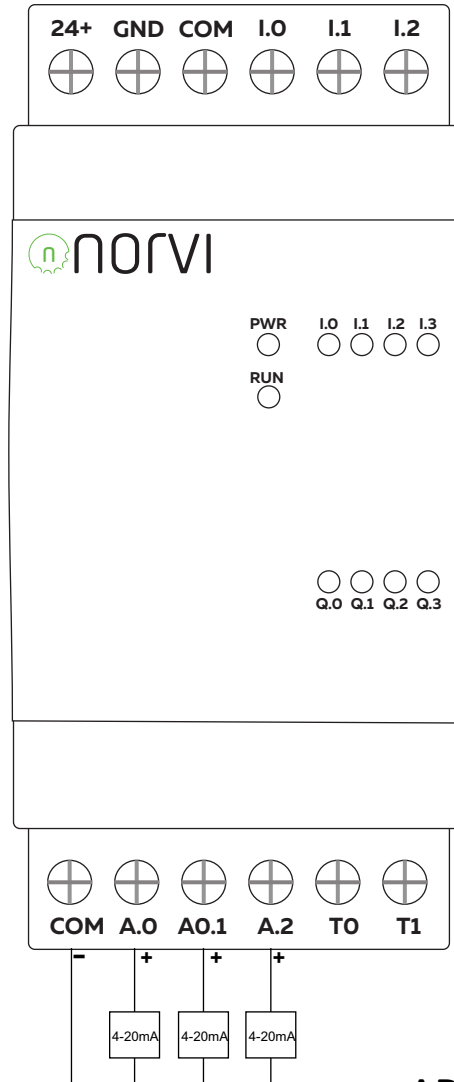


ADS1115 connections

IC Type	ADS 1115
Communication	I2C IO16 - IO17
Module Address	0x48 / 0x49
Resolution	16 bit

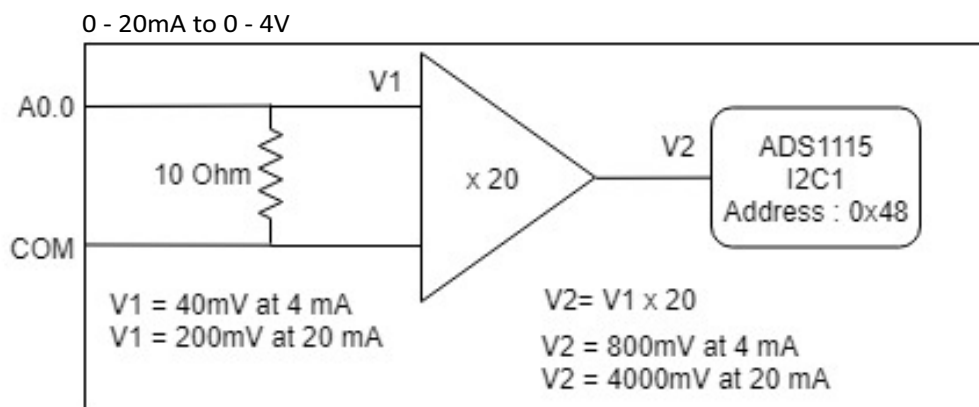
Analog Inputs wiring diagram

0 - 20mA DC

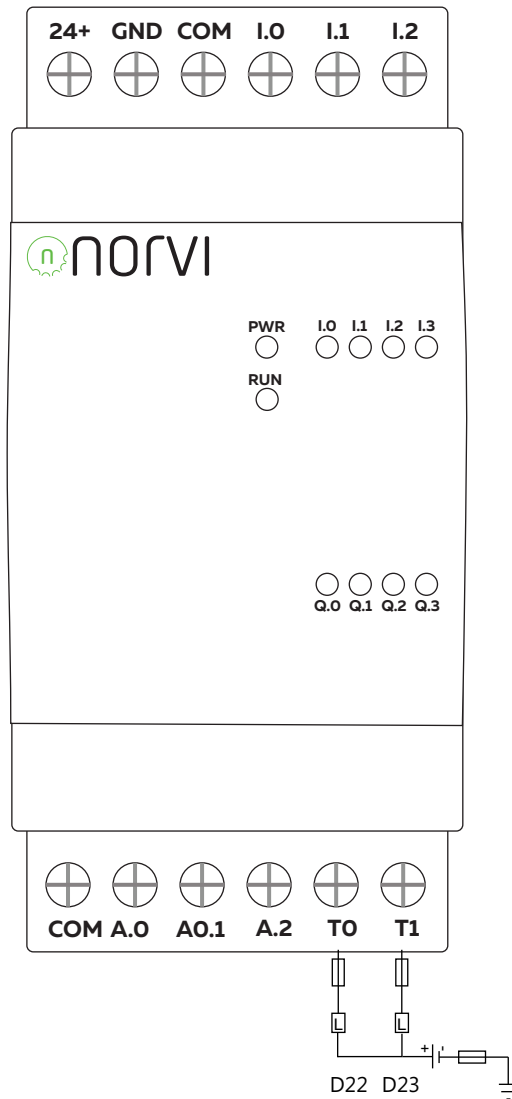


ADS1115 connections

IC Type	ADS 1115
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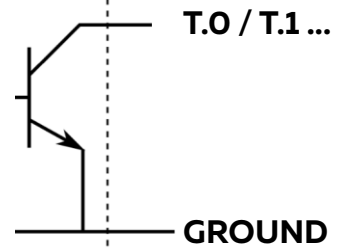


Transistor outputs wiring diagram

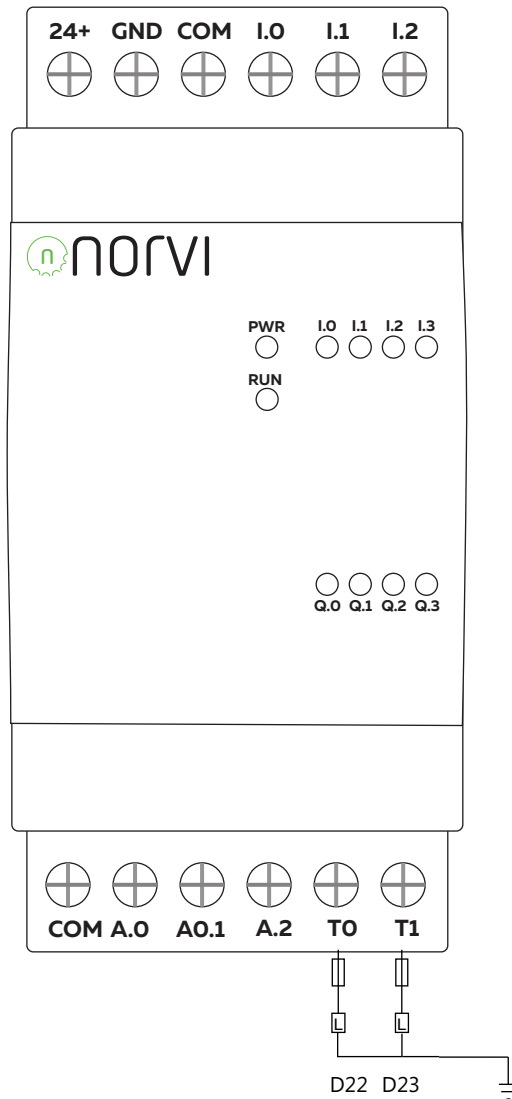


Transistor output

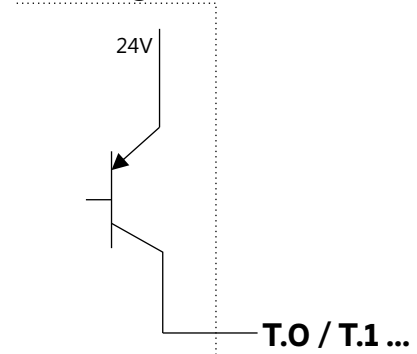
Il to IC



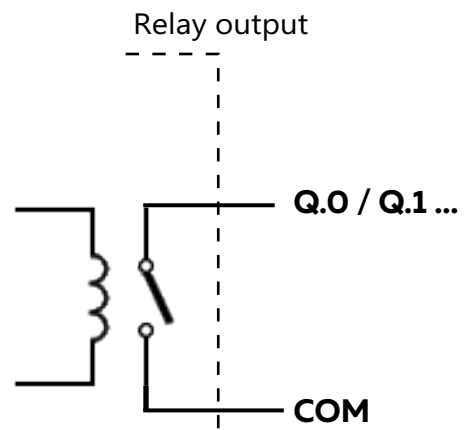
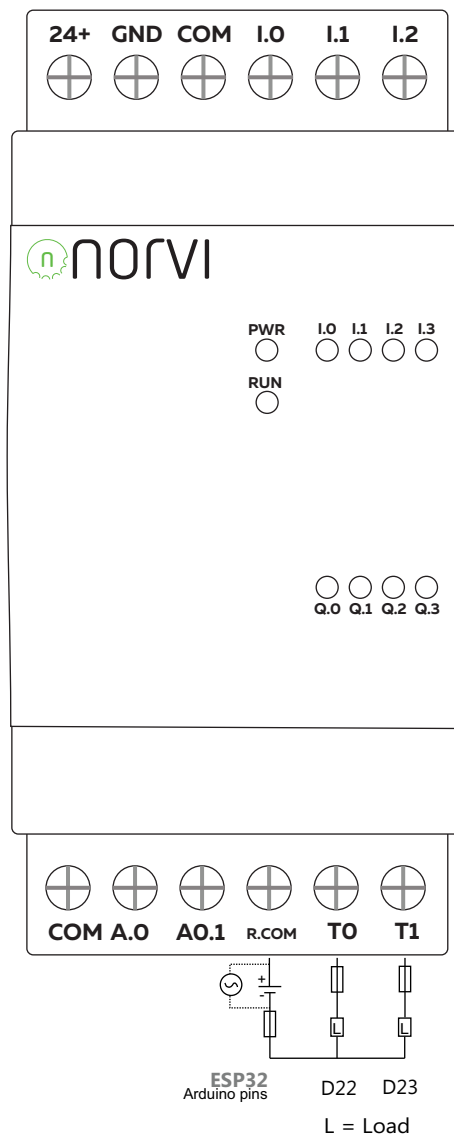
Transistor outputs High Side Switch AT01-BT4 / AT01-BT3 / AT01-BT4



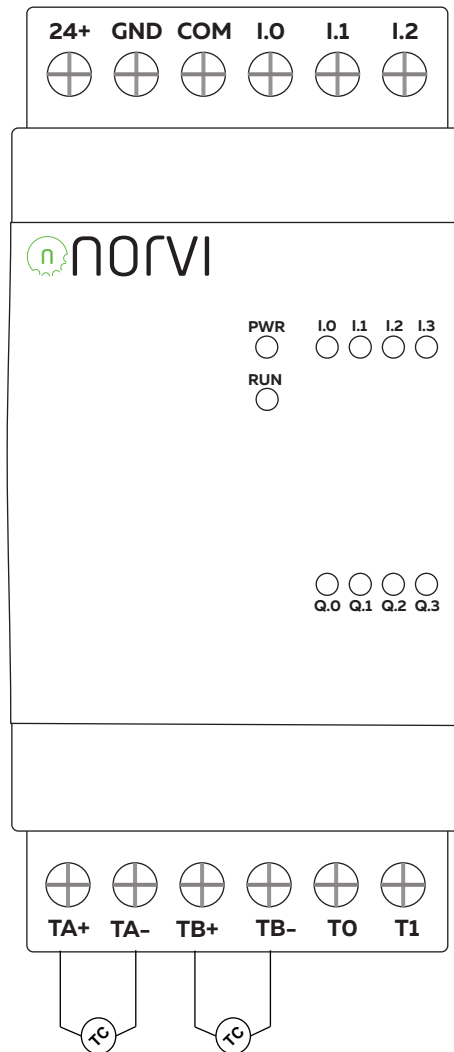
Transistor output
High-side switch



Relay output



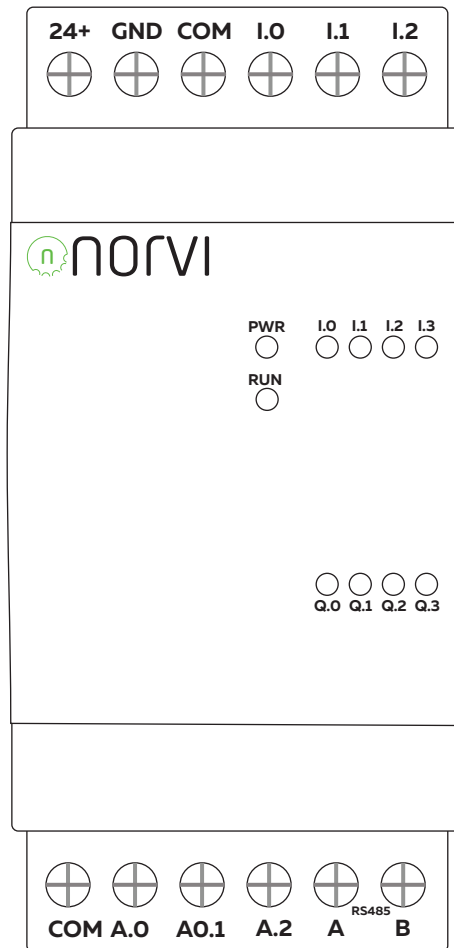
Thermocouple wiring diagram



MAX31855 connections

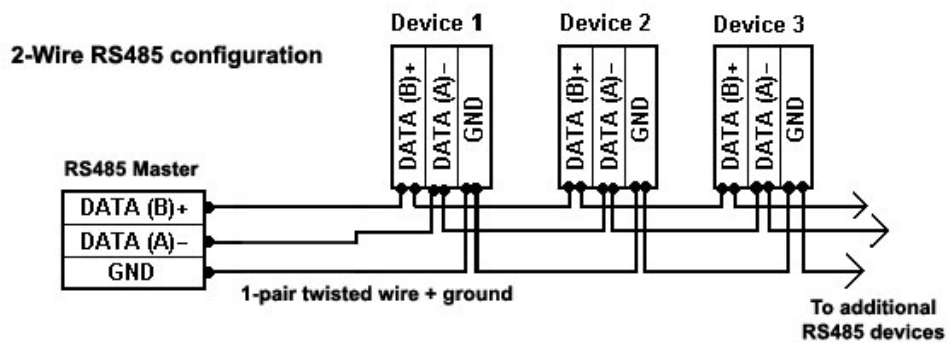
IC Type	MAX31855		
Communication	SPI	SCK	IO18
		MISO	IO19
		CS	IO6

RS-485 wiring diagram



HALF-DUPLEX

Flow control
IO17



RTC parameters

Display driver	DS3231
Communication	I2C IO16(SDA) - IO17(SCL)
Module Address	0x68
Battery Backup	YES

microSD card access

Connection	SCK IO18 CS IO5	MISO IO19 SD Detect IO14	MOSI IO23
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Built in buttons

Read mode	Digital Input IO 35
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Pixel RGB LED

Module Type	WS2812
Communication	One wire
Connection	GPIO 4

NB-IoT Module communication

Module Type	QUECTEL BC95-G
Communication	UART
Module Address	NA
Command set	AT
Connection	UART0 (RXD0, TXD0)

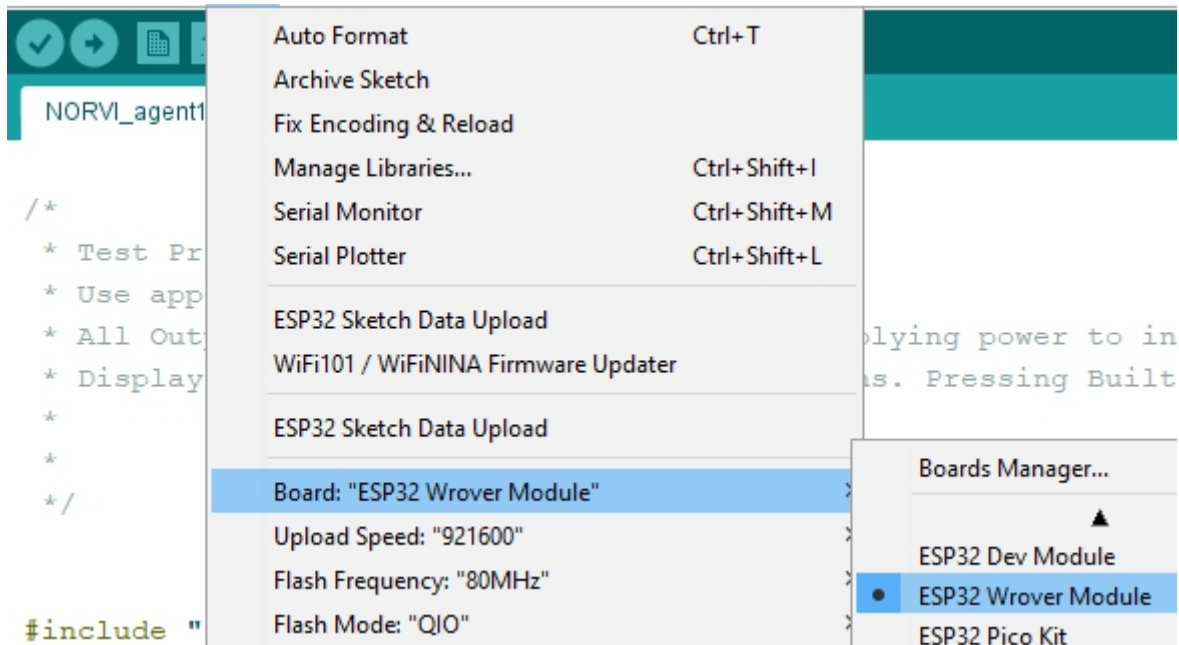
LoRa Module communication

Module Type	RLYR894 RLYR406 (Order depending on regional regulations)
Communication	UART
Module Address	NA
Command set	AT
Connection	UART0 (RXD0, TXD0)

Example program and libraries available at

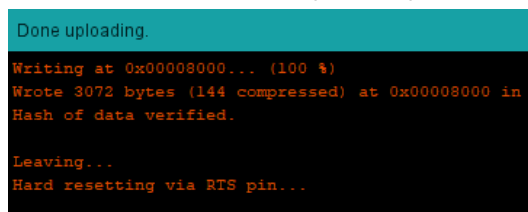
<https://norvi.lk/forums>

Programming procedure



Board	ESP32 Wrover Module
Flash Mode	QIO
Flash Size	4MB
Flash Frequency	10MHz
PSRAM	Enabled
Upload Speed	115200

After successful uploading of program following message appears.



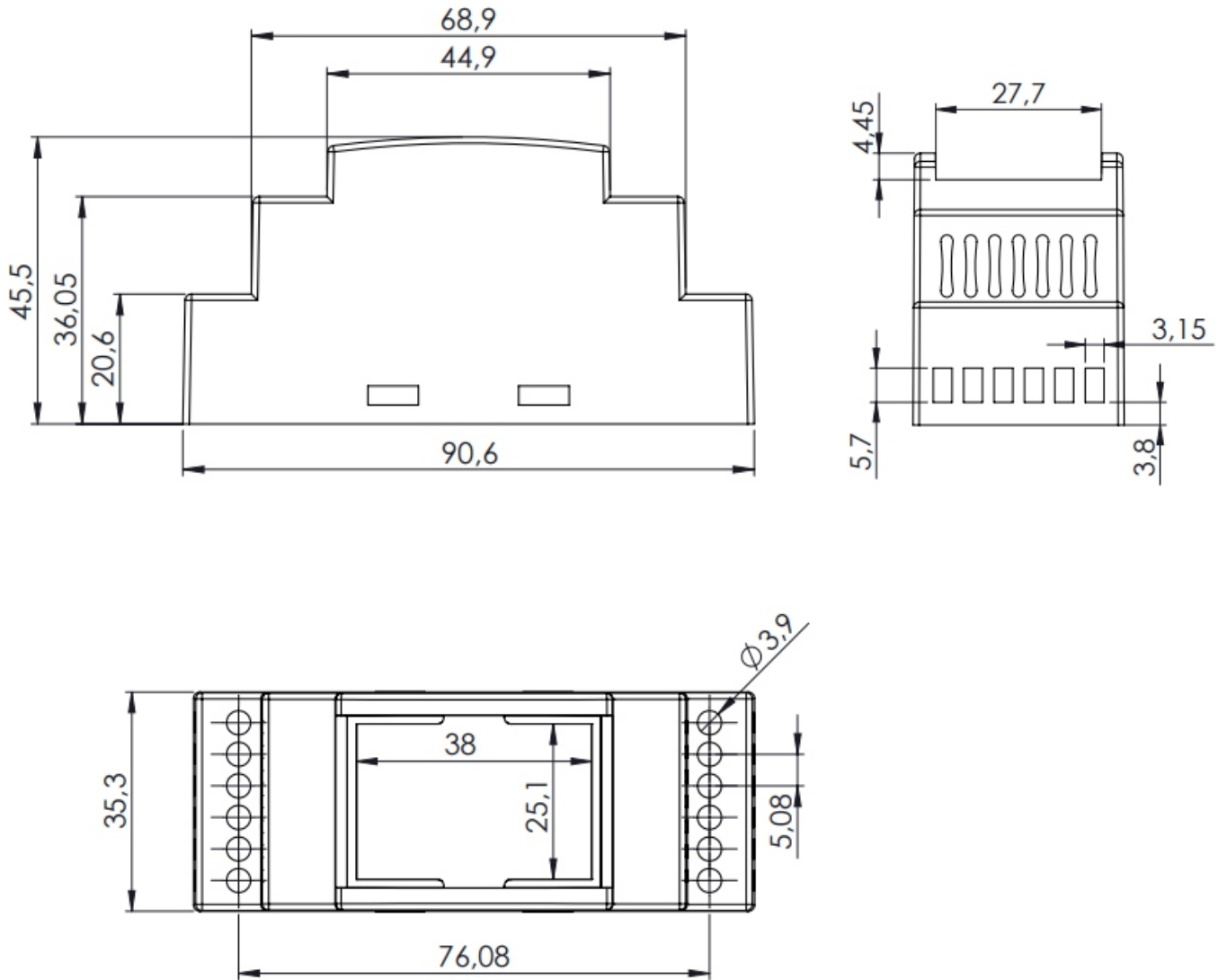
esp32 Boards must be installed under board manager, it is recommended to use the latest version of esp32 board driver for Arduino.

Due to installation of different drivers and older versions of libraries, Arduino fails to upload the program to the controller. In most cases it is due to failure to enter boot mode of the device.

The device can be forced to boot mode by connecting the BOOT IO0 of the expansion port to the GND pin with a jumper wire. Arduino is able to upload the program to controller while the controller is in boot mode.

After uploading the program, the connection between the BOOT IO0 and GND must be removed to run the uploaded program.

Dimensions





Reach-Us

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