

C1

2 Digital Input
2 Analog inputs 0 - 10V
1 RS-485 Communication

C2

2 Digital Inputs
1 RS-485 Communication

C3

1 Load Cell input

C4

1 Thermocouple input

C5

1 Thermocouple input

Communication Options



WiFi available on all devices



Main

Range of product	Model 1
Product type	Programmable node
Rated supply voltage	Standard 9 - 24V DC
Field of Application	Monitoring
Discrete Input Voltage	18 - 24 V DC
Analog input range	0 - 10V DC / 0 - 20 mA (depending on model)
Communication	RS-485 (depending on model)

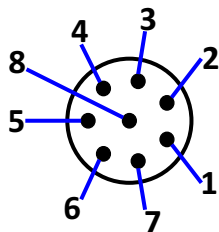
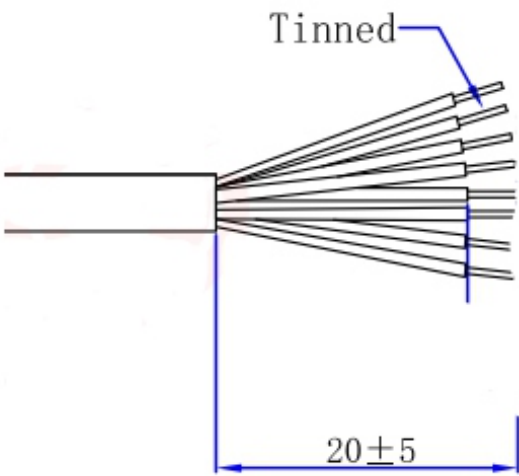
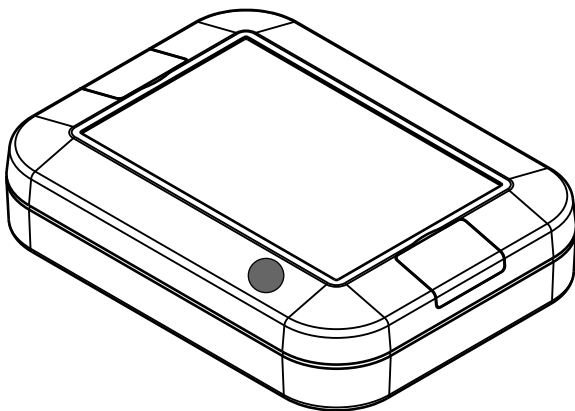
Complementary

Local signalling	1 LED green for PWR 1 LED Red for Indication
Electrical connection	Removable 8 pin connector / 3 meter cable supplied in standard package
Mounting support	Wall mount Electrical Pole mount - accesory required
Height	100.00 mm
Depth	22.00 mm
Width	75.00 mm
Product weight	0.22 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

8 Pin connector and wire harness



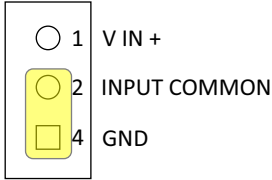
8P Male	Wire color
1	White
2	Brown
3	Green
4	Yellow
5	Gray
6	Pink
7	Blue
8	Red

Pin Description

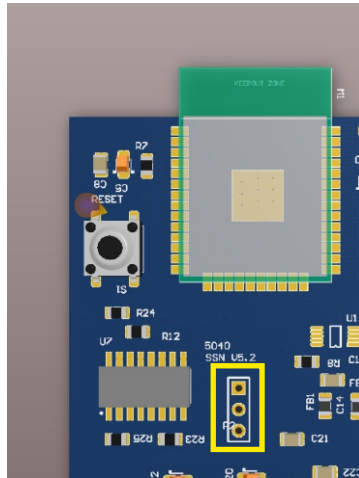
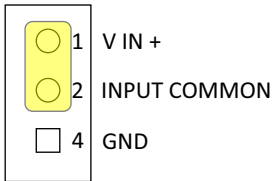
Wire Harness		I/O Configuration - 1				
8P Male	Wire color	CF1	CF2	CF3	CF4	CF5
1	White	Digital IN 1	Digital IN A	A +	Thermocouple +	SCL
2	Brown	Digital IN 2	Digital IN A	A -	Thermocouple -	SDA
3	Green	Analog IN 1	Digital IN B	B +	---	---
4	Yellow	Analog IN 2	Digital IN B	B -	---	---
5	Gray	POWER +	RS-485A	RS-485A	---	3.3V+
6	Pink	POWER -	RS-485B	RS-485B	---	---
7	Blue	RS-485B	POWER +	POWER +	POWER +	POWER +
8	Red	RS-485A	POWER -	POWER -	POWER -	POWER -

Digital Inputs Wiring

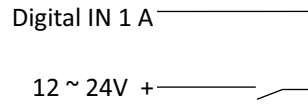
Source Configuration



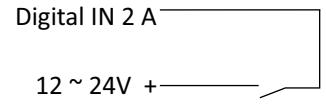
Sink Configuration



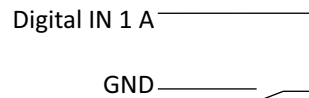
ESP32 GPIO **35**



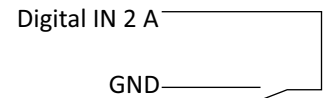
ESP32 GPIO **34**



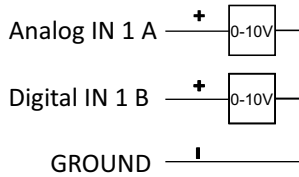
ESP32 GPIO **35**



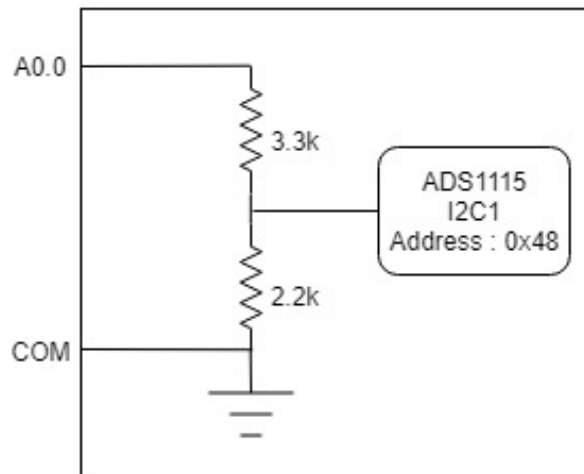
ESP32 GPIO **34**



Analog Wiring



0 - 10 V input to 0 - 4V



ADS1115 Connections

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

Programming

Library Adafruit ADS1115

[Edit to the library](#)

File: Adafruit_ADS1015.cpp

Function Adafruit_ADS1015::begin()

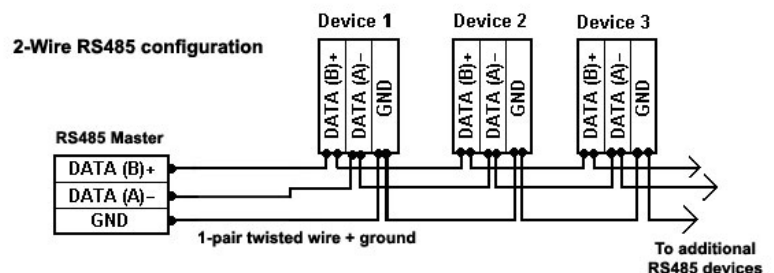
Change :

Wire.begin() to Wire.begin(16,17);

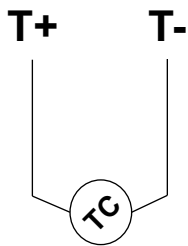
RS-485 Interface

ADS1115 Connections

UART RX	IO25
UART TX	IO26
Flow Control	IO13



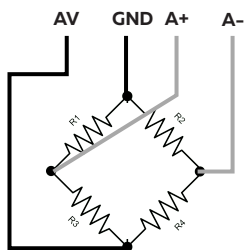
Thermocouple Wiring



MAX31855 connections

IC Type	MAX31855		
Communication	SPI	SCK	IO18
		MISO	IO19
		CS	IO5

Load cell Wiring



Interface connections

Module Type	HX711
PD_SCK	IO32
DOUT	IO33

RTC parameters

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

Module Type	QUECTEL BC95-G
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Communication	UART
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Module Address	NA
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Command set	AT
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Connection	UART1 (IO25, IO26)
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LoRa Module communication

Module Type	RLYR894 RLYR406 (Order depending on regional regulations)
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Communication	UART
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Module Address	NA
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Command set	AT
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Connection	UART1 (IO25, IO26)
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4G LTE Module communication

Module Type	SIM7000
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Communication	UART
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Module Address	NA
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Command set	AT
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Connection	UART1 (IO25, IO26)
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mini-USB



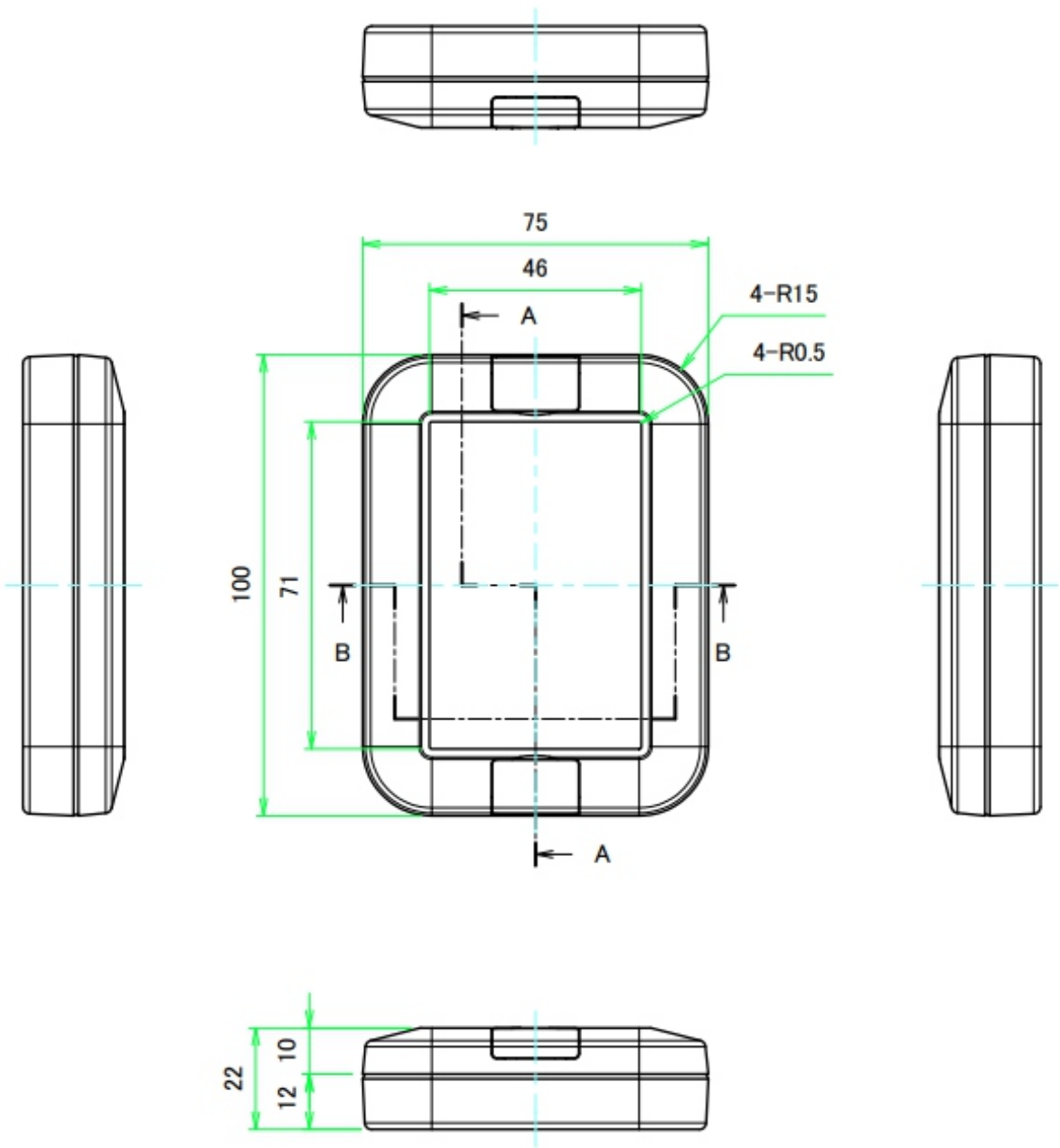
Board	ESP32 WROOM Module
Flash Mode	QIO
Flash Size	4MB
Flash Frequency	10MHz
PSRAM	Enabled
Upload Speed	115200

After successful uploading of program following message appears.

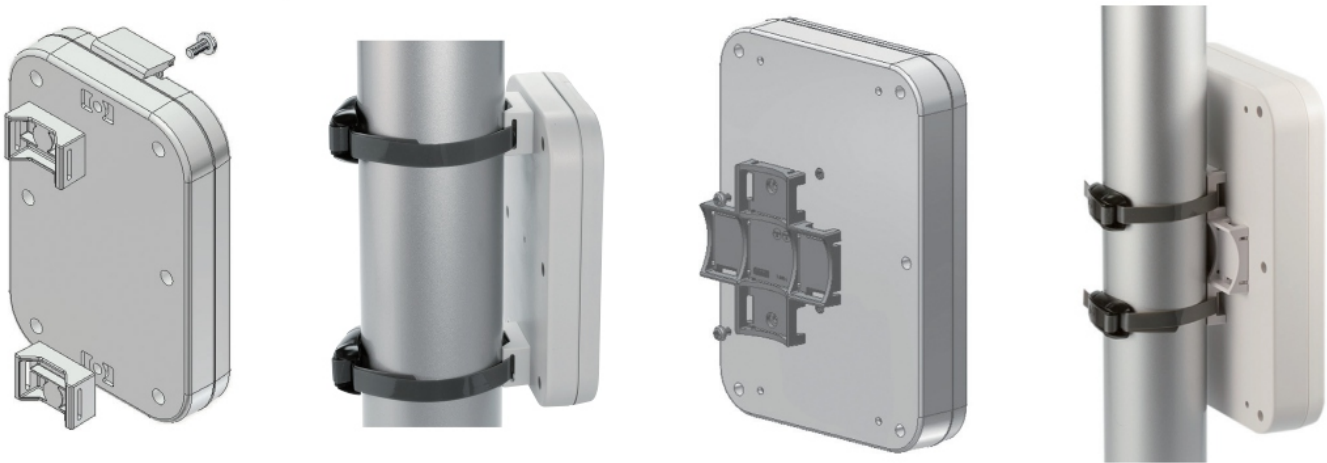
```
Done uploading.
Writing at 0x00008000... (100 %)
Wrote 3072 bytes (144 compressed) at 0x00008000 in
Hash of data verified.
Leaving...
Hard resetting via RTS pin...
```

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.



Pole mount Bracket (Optional)





Reach-Us

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Revision History

Initial Release	2019 July	1.00
Revision 1	2020 January	1.13
Revision 2	2021 April	2.00
