



VERSION 1.0


16-04-2023

WEATHER STATION

DISH CONTROLLER

© EA3HMJ

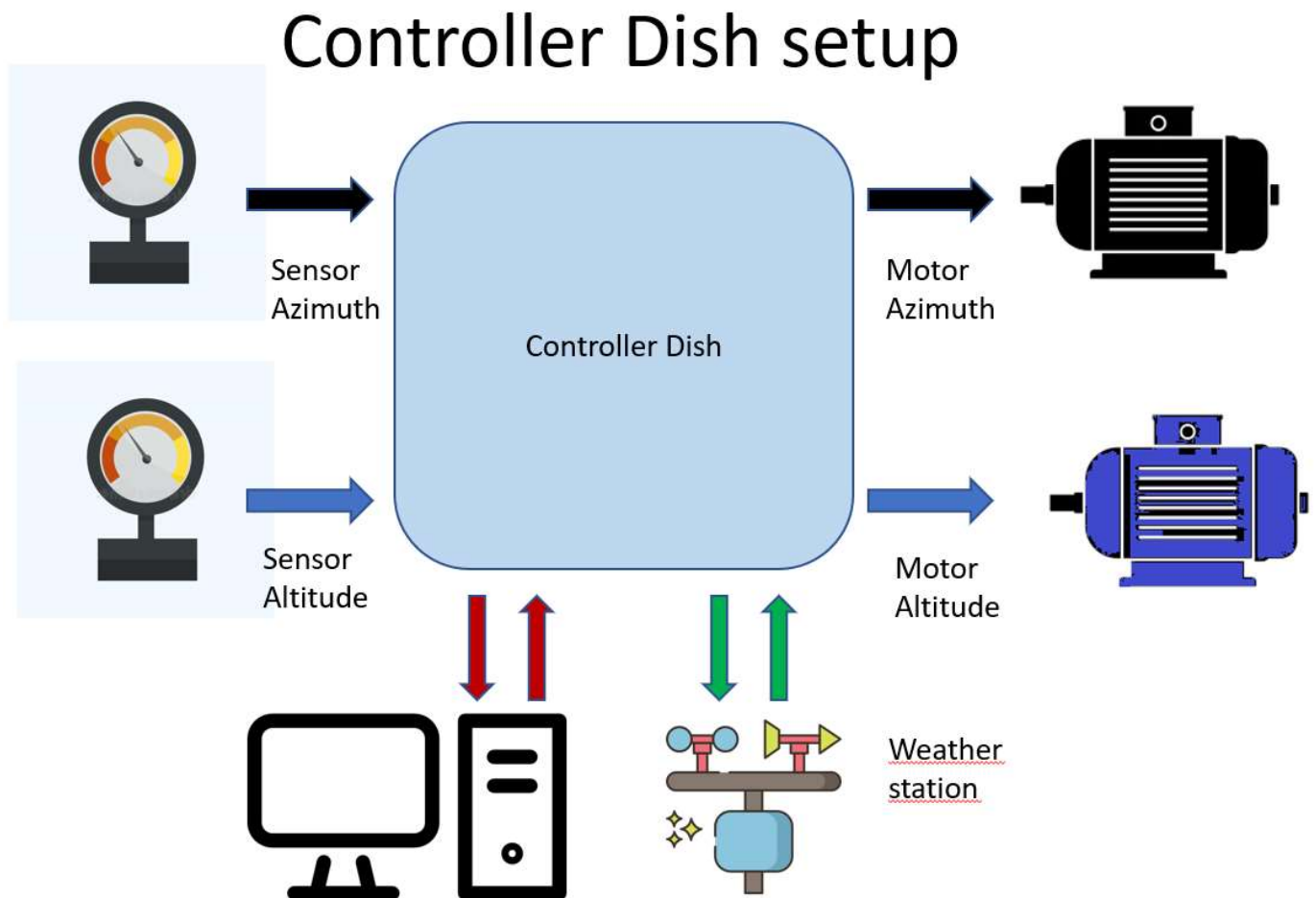
Translated by EA4LE



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### INTRODUCTION

Starting from Dish Controller board version 1.5, an auxiliary MOD-BUS RS485 port is available. It is highly recommended to utilize this port for connecting the weather station.

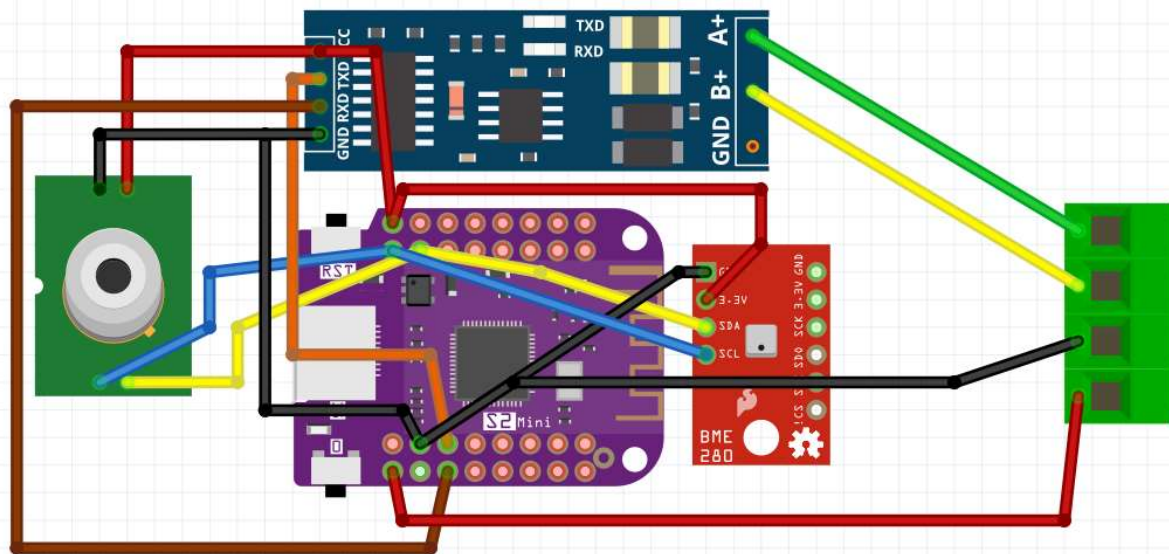


The weather station uses the following devices:

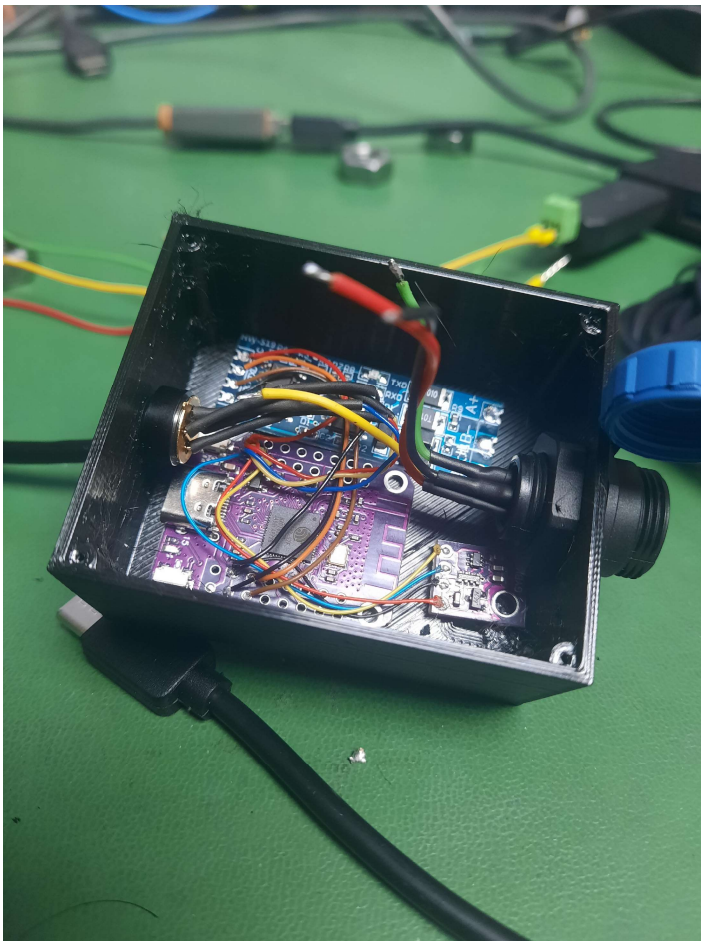
- ESP32 -S2 mini microcontroller
- BME280 environmental sensor
- MLX90614 10° POV IR temperature sensor
- TTL - RS485 Interface

## HARDWARE

There is no PCB for this module, the devices are wired in a point-to-point configuration. Make sure to double-check all the connections to ensure they are properly connected as per the diagram below.



Conector circular 4 pin



## COMMUNICATIONS

Communication with the host PC is established through the RS485 port at a baud rate of 57600 bps. This configuration allows for reliable and efficient data transmission between the devices.

The device has been assigned the address number 3, and it has a total of 5 data registers available. This address will be used to uniquely identify and communicate with the device, while the data registers will store and transmit the information referred on the table below.

Register	Contents	Comments
0	Sky Temperature	Transmits temperature * 10
1	Environment Temperature	Transmits temperature * 10
2	Atmospheric Pressure	
3	Relative Humidity	
4	BME280 Temperature	Transmits temperature * 10

These values Will be used by the DriverDish.App program

DriverDish.App(1.0.926.0) C:\Users\Jose A. Soler Amat\Google Drive\Proyectos\Efemerides\Driv... — □ ×

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		Position dish	Correction	Track error	Offset
°Az	NC	9.650	0.000		0.000
°El	NC	17.620	0.000		0.000

☐ Corrections Sky/Amb T° **Na** 0.0

Move dish Setup AstroServer Radios Heatmap Motors **WX**

**Weather station**

Sky temperature	22.8 °C
Ambient temperature	25.7 °C
Atmospheric pressure	978 mBar
Relative humidity	27 %
Sensor temperature	24.2 °C

Range Enc 0/0    ...

## ENLACES DE COMPRAS

### ESP32 S2 MINI

[https://www.amazon.es/Sxdluzi-V1-0-0-ESP32-S2FN4R2-ESP32-S2-MicroPython/dp/B0BPS4X6C9/ref=sr\\_1\\_1\\_sspa?mk\\_es\\_ES=%C3%85M%C3%85%C5%BD%C3%95%C3%91&crd=O03W9L2VSBFF&keywords=ESP32+S2+Mini&qid=1681664534&s=electronics&srefix=esp32+s2+mini+%2Celectronics%2C95&sr=1-1-spons&sp\\_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1](https://www.amazon.es/Sxdluzi-V1-0-0-ESP32-S2FN4R2-ESP32-S2-MicroPython/dp/B0BPS4X6C9/ref=sr_1_1_sspa?mk_es_ES=%C3%85M%C3%85%C5%BD%C3%95%C3%91&crd=O03W9L2VSBFF&keywords=ESP32+S2+Mini&qid=1681664534&s=electronics&srefix=esp32+s2+mini+%2Celectronics%2C95&sr=1-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&psc=1)

<https://es.aliexpress.com/item/1005003145192016.html>

### TTL TO RS485 ADAPTER

[HTTPS://WWW.AMAZON.ES/DP/B09Z2GTMJ8?PSC=1&REF=PPX\\_YO2OV\\_DT\\_B\\_PRODUCT\\_DETAILS](HTTPS://WWW.AMAZON.ES/DP/B09Z2GTMJ8?PSC=1&REF=PPX_YO2OV_DT_B_PRODUCT_DETAILS)

[https://es.aliexpress.com/item/4001032241843.html?pdp\\_npi=2%40dis%21EUR%21%E2%82%AC%200.64%21%E2%82%AC%200.55%21%21%21%21%21%21%40211b446216816647415508375efcc0%2110000013612022862%21btf&t=pvid%3A1bd3ddbe-5843-4520-8937-7037dd0f996e&afTraceInfo=4001032241843\\_pc\\_pcBridgePPC\\_xxxxxx\\_1681664741&spm=a2g0o.ppclist.product.mainProduct&gatewayAdapt=glo2esp](https://es.aliexpress.com/item/4001032241843.html?pdp_npi=2%40dis%21EUR%21%E2%82%AC%200.64%21%E2%82%AC%200.55%21%21%21%21%21%21%40211b446216816647415508375efcc0%2110000013612022862%21btf&t=pvid%3A1bd3ddbe-5843-4520-8937-7037dd0f996e&afTraceInfo=4001032241843_pc_pcBridgePPC_xxxxxx_1681664741&spm=a2g0o.ppclist.product.mainProduct&gatewayAdapt=glo2esp)

### BME280

[https://www.amazon.es/s?k=bme280+3%2C3v&ref=nb\\_sb\\_ss\\_fb\\_1\\_4](https://www.amazon.es/s?k=bme280+3%2C3v&ref=nb_sb_ss_fb_1_4)

[https://es.aliexpress.com/item/1005002950104941.html?pdp\\_npi=2%40dis%21EUR%21%E2%82%AC%200.80%21%E2%82%AC%200.76%21%21%21%21%21%21%40211b5e1d16816651886764122e0b15%2112000022925834914%21btf&t=pvid%3Ad0062f42-466e-4436-bf42-ae8905e6ea85&afTraceInfo=1005002950104941\\_pc\\_pcBridgePPC\\_xxxxxx\\_1681665189&spm=a2g0o.ppclist.product.mainProduct&gatewayAdapt=glo2esp](https://es.aliexpress.com/item/1005002950104941.html?pdp_npi=2%40dis%21EUR%21%E2%82%AC%200.80%21%E2%82%AC%200.76%21%21%21%21%21%21%40211b5e1d16816651886764122e0b15%2112000022925834914%21btf&t=pvid%3Ad0062f42-466e-4436-bf42-ae8905e6ea85&afTraceInfo=1005002950104941_pc_pcBridgePPC_xxxxxx_1681665189&spm=a2g0o.ppclist.product.mainProduct&gatewayAdapt=glo2esp)

### MLX90614

<https://www.ebay.es/itm/173858657366?hash=item287ac89456:g:rzwAAOSw6n5XvLW9&amdata=enc%3AAQAIAAAAwICMTxSBsxy8PAX6rDxlUr%2FXbDutRZKorxaV5EpyON0BKKDuVTBHP8vM5Xnlu6rfCyp59uEsYmOrB2xD7d1Uu5aPHavjw3u7seGHzUjBaJTB9EI08rAlBsckiTEllIcj9ozrf7C2uI4NxLpVNvFt3GdD2lNp11iZbqDto6JaQfwse2meCR5GUvWaQpQmLk40Q6Lcy5%2FIAF%2B%2BS2%2BuK3DBceEe3Li3G2DRARkmla4JntOHyOKkNLz%2BFT8ta7I0FLpdGA%3D%3D%7Ctkp%3ABk9SR-rQhrHxYQ>