



IDInterface

Operating Instructions, Assembly, and Installation, for the Heathkit ID-4001/ID-5001 Weather Computers

The IDInterface is a complete solution for connecting classic, collectible, Heathkit weather stations with modern sensors, and Internet based data sources. It offers the flexibility to source anemometer data from a Davis 7911 or a Davis 6410 Vantage Pro 2 anemometer, or from Weather Underground stations, over the Internet. The interface is powered directly by the weather station at +5v. Installation is simple and fully reversible. No internal connections are made to the weather computer. The IDInterface only connects to the terminal strips on the bottom.

Features of the IDInterface include:

- Initial setup and configuration are accomplished using a web browser on a pc or mobile device.
- Connects to open or password protected WiFi networks.
- Receive wind speed and direction data from a Davis 7911 anemometer, or from Weather Underground, over the Internet (A WU account is required).
- Outside and inside temperature and humidity (ID-5001 only) can use original Heathkit sensors, or BME280 sensors.

Button functions:

Short press and release – restart interface

Long, ten second hold and release – restart interface in access point mode to set or reset configuration

Long, twenty second hold and release – same as above, and reset all settings to defaults

Configuration settings:

Defaults are for USA, Eastern Time –

DST = March, Week 2, Sunday, 2:00AM

STD = November, Week 1, Sunday, 2:00AM

Option	Description	Setting
1	Access Point Name	Defaults to IDInterface
2	Network SSID	WiFi network name (Networks will be displayed in a dropdown)
3	Password	WiFi password
5	Weather Underground Key	Sign up here to get a free key: https://www.wunderground.com/signup?mode=api_signup
6	Postal Code or Station ID	Connects IDInterface to Weather Underground weather station. Less than 7 characters is recognized as a postal code. Seven characters or more is recognized as a station id.
7	WU Poll Interval	1-60 minutes Free Weather Underground Stratus plan allows 500 calls per day so this should not be set to less than 3 for a single IDInterface.
8	Wind Source	Anemometer, Weather Underground
9	Inside Temperature Source	Original Sensor, Weather Underground
10	Inside Temperature - Offset	0-50 in -.1 degree steps
11	Outside Temperature Source	Original Sensor, IDInterface, Weather Underground
12	Outside Temperature - Offset	0-50 in -.1 degree steps
13	Inside Humidity	Original Sensor, IDInterface (ID-5001 Only)
14	Outside Humidity	Original Sensor, IDInterface, Weather Underground (ID-5001 Only)
15	Rain Sensor	Original Sensor, IDInterface
16	NTP Server	Default is us.pool.ntp.org
17	UTC Offset Hours	0 – 13 hours (0 = no offset from UTC)
18	UTC Offset Minutes	0, 30, 45
19	UTC Offset Direction	+/-
20	DST Offset Hours	0 – 13 hours (0 = no DST)
21	DST Offset Direction	+/-
22	DST Start Month	Month
23	DST Start Week of Month	1 - 5

Option	Description	Setting
24	DST Start Day of Week	Day
25	DST Start Hour	0 – 23 hours
26	DST End Month	Month
27	DST End Week	1 - 5
28	DST End Day	Day
29	DST End Hour	0 – 23 hours

Setup and Operation

Status codes are displayed using the wind direction indicator, cycling from North as number one, clockwise to the intended code, then back to North. Displayed codes are as follows:

- 16 = Access point mode and temperature calibration mode
- 2 = WiFi Connection –invalid access point, password, or connection issue
- 3 = NTP Connection –invalid NTP server or no connection to NTP server
- 4 = Weather Underground API key or zip code error

If the interface has not been previously configured, it will start in access point mode, with SSID = IDInterface.

Connect using WiFi from a pc or mobile device. After the connection is made, use a browser to connect to IP address 192.168.13.1.

Network and Weather Underground fields should be set if using data from Weather Underground.

NTP time information may be required for future upgrades. The WiFi password must be blank for an open connection, or eight or more characters long for a password protected connection. Anything less than eight characters will be ignored and the interface will assume that the connection is to an open, unsecured access point.

Set remaining sensor options as desired and press the save button at the bottom of the form.

DO NOT USE PUNCTUATION OR CONTROL CHARACTERS IN THE PASSWORD FIELD. SOME CHARACTERS (DEFINITELY '?') WILL CORRUPT THE SETUP DATA. IF THAT HAPPENS, PRESS THE BUTTON FOR TWENTY SECONDS TO RESET SETTINGS TO DEFAULTS.

A short press and release of the button will restart the IDInterface. A long press greater than ten seconds will restore access point mode to reconfigure settings. A long press greater than

twenty seconds will restore access point mode and will reset all settings to defaults.

When the IDInterface is in access point mode to set options, both temperature sensors are set to 32 degrees. Use this mode to calibrate the weather computer following the instructions in the Heathkit manual, instead of using the original sensor dipped in ice water.

Weather Display

If the source for any weather data is Weather Underground, sign up for a developer key using the link below.

Weather Underground Terms of Service must be accepted before accessing API Data.

[Weather Underground Terms of Service](#)

[Sign up for a free key here.](#)



Software Updates

Occasional software updates may be provided to improve performance and/or add new features. Carefully follow these instructions to update the software.

Connect the board to a PC using a USB cable. In Device Manager, note the COM port. It is not necessary to remove power from the clock, or to remove the processor board from the interface.

Click [ESP32 Flash Download Tool](#) to download the tool, and click on the file to install and run. It is now stored on the site as a .RAR file so a compatible utility must be used to unpack the file. It is also stored at [angryelectrons.co](#) on the product page, as a zip file. Extract it and run the .exe file.

Select *ESP32 Download Tool* from the menu.

Select *SPIDownload* tab and enter the following settings:

Download Path Config: Select the file provided by email or the web site by clicking on the box with three dots, on the first line. After “@”, enter address 0x00010000. Check the box to the left of the file name.

DO NOT CHECK ANY OTHER BOX IN THE LEFT COLUMN. IF THEY ARE CHECKED BY DEFAULT, UNCHECK THEM.

Additional Settings

Crystal Freq:40M

SPI SPEED: 40MHz

SPI MODE: QIO

FLASH SIZE: 32Mbit

COM: Port: Enter the port noted in the Device Manager.

BAUD: Select 921600. If the update fails, try a slower baud rate.

DO NOT SET OR CHANGE ANY OTHER SETTINGS. REVIEW TO MAKE SURE ALL SETTINGS ARE CORRECT, ESPECIALLY THE ADDRESS AFTER “@.” IF INCORRECT SETTINGS ARE FLASHED, THE PROCESSOR MAY HAVE TO BE RETURNED FOR REPROGRAMMING.

Click *START*. When finished, disconnect the USB cable and disconnect power for a few seconds.

Notice

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Installation

Use the ribbon cable and connectors to connect all J5 wires to their corresponding connections on the bottom of the ID-4001, matching the colors listed on the board next to J5. Abbreviations are as follows:

TIW – temperature inside white
TIB – temperature inside black
TOW – temperature outside white
TOB – temperature outside black

It is up to the user to find an appropriate housing or mounting position for the IDInterface. One suggestion is to mount it to the back plate of the ID-4001

Assembly

The following are not step by step assembly instructions. It is presumed that the user has some basic knowledge of electronics including soldering techniques, and understands normal precautions regarding line voltages present in the weather computer.

DO NOT PRESS THE BUTTON LABELED BOOT OR FLASH ON THE ESP32 MICROCONTROLLER, OR IT MAY BE PERMANENTLY DISABLED. If that happens, the board may have to be returned for reprogramming. It is OK to press the EN button to reboot the ESP32, but that should never be necessary. Use the button on the interface board to reboot, or remove power.

Install components marked on the board, using the schematic and the parts list.

The ESP32 microprocessor board is installed with the micro USB connector facing the side of the interface board with the pushbutton. The antenna goes on the side marked, Antenna.

Headers are strongly recommended for U1, the ESP32 microcontroller, so that it can be removed if necessary for replacement or reprogramming. A 40 pin header is included. It must be cut into two, 19 pin parts. A 90 degree, 6 pin male header should be soldered to the BME280 sensor, and a 6 pin female header should be added at J4, so the sensor will stand vertically..

Install the BME280 sensor at J4. If the original Heathkit sensor is used for inside temperature, the BME280 is not used, but may be installed. Carefully check the BME280 to be sure it is not installed backward. Doing so will destroy the sensor.

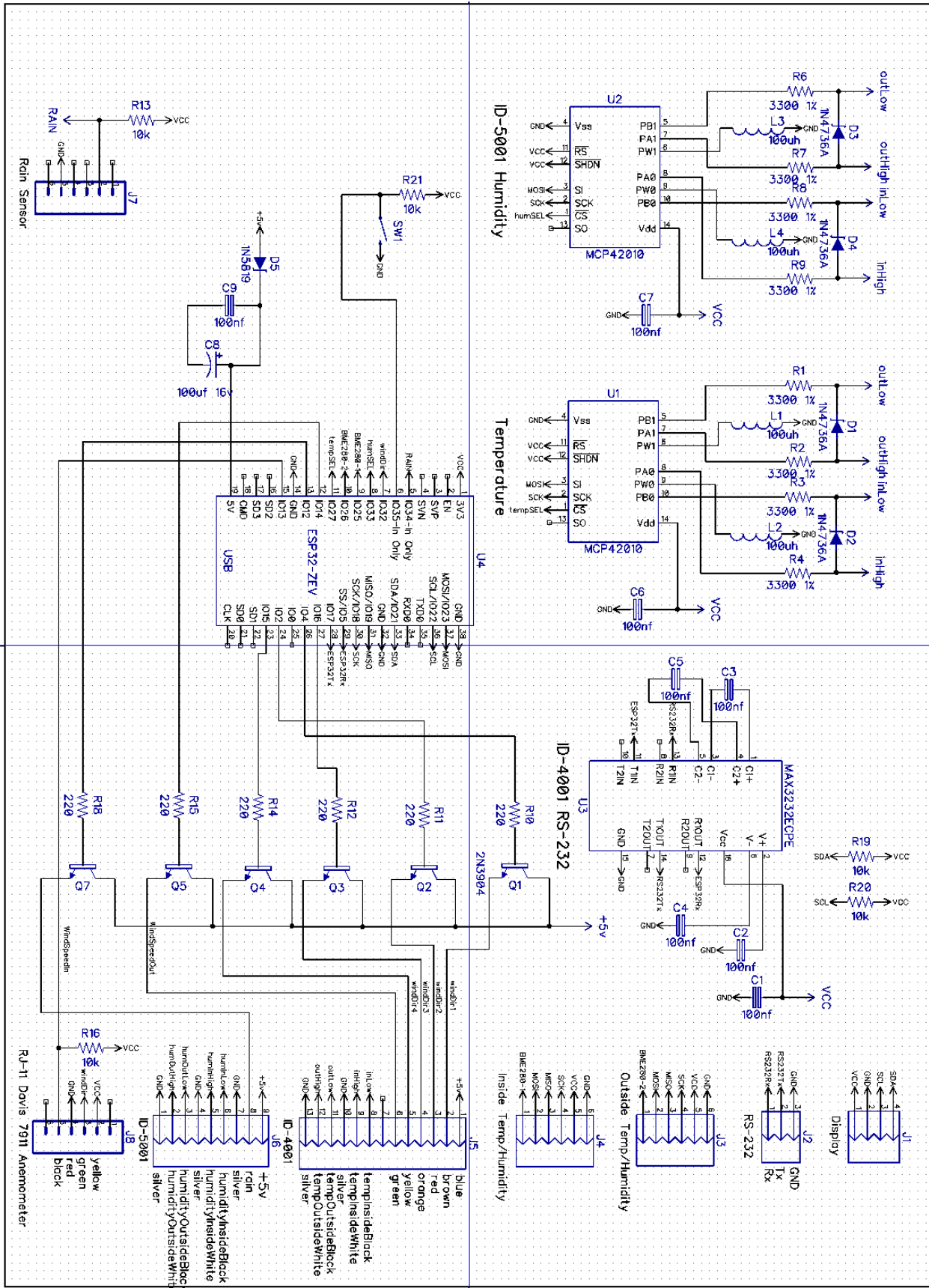
A second BME280 sensor (not included) can be used for outdoor monitoring, but a weather resistant enclosure should be used. Cable length for these sensors should be no more than ten feet.

Note that parts are included for the configuration that was purchased only. Some components are not included and will not be installed. See the parts list below.

Reference	Part	Description
U4	ESP32	Espressif ESP32 WROOM DevKitC or compatible
U1	MCP42010	Digipot IC
R1-R4	3300 ohm ¼ watt 1%	Resistor (orange, orange, black, brown, brown)
R10, R11, R12, R14, R15, R18	220 ohm ¼ watt	Resistor (red, red, brown)

Reference	Part	Description
R16, R19, R20, R21	10k ohm ¼ watt	Resistor (brown, black, orange)
Q1-Q5, Q7	2N3904	Transistor
D1, D2	1N4736A	Diode 6.8v zener
D5	1N5819	Diode
C6, C7, C9	100nf	Capacitor
C8	100uf, 16v	Electrolytic Capacitor
J4	BME280	Weather sensor
	Header - Female	For the ESP32 microcontroller, 19 pins x 2, and inside temperature sensor, 6 pins
	Header – Male	6 pin 90 degree, for temperature sensor
J8	RJ11 Jack	Amphenol 54601-906WPLF
SW1	Pushbutton	
IC Socket U1	14 Pin	
Circuit Board		IDInterface circuit board
L1, L2	Jumpers	Add 100uh RF chokes (not included) for longer cable runs. Ten meters is about maximum.
	Spade connector	Quantity 12
ID-5001 Only		
U2	MCP42010	Digipot IC
R6-R9	3300 ohm ¼ watt 1%	Resistor
C7	100nf	Capacitor
D3, D4	1N4736A	Diode 6.8v zener
IC Socket U2	14 Pin	
J7	RJ11 Jack	Amphenol 54601-906WPLF
L3, L4	Jumpers	Add 100uh RF chokes (not included) for longer cable runs
	Spade connector	Quantity 9
Future Serial Expansion		
C1-C5	100nf	Capacitor

Reference	Part	Description
U3	MAX232CPE	IC
IC Socket U3	16 Pin	



Warranty Terms and Conditions

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