Written by Neil Mather
Last Updated: 07/2026
Welltech V2.3

Symphony

Symphony Welltech
User Manual

Read this manual before attempting to install the device

Failure to observe recommendations included in this manual may be dangerous or cause a violation of the law. The manufacturer, Symphony Energy will not be held responsible for any loss or damage resulting from not following the instructions of this operating manual.

- The device must not be dismantled or modified in any way.
- The device is only intended for indoor use. Do not expose it to moisture.
- The device is not intended to be used as a reference sensor, and Symphony Energy will not be held liable for any damage which may result from inaccurate readings.
- The battery should be removed from the device if it is not to be used for an extended period. Otherwise, the battery might leak and damage the device. Never leave a discharged battery in the battery compartment.
- The device must never be subjected to shocks or impacts.
- To clean the device, wipe with a soft moistened cloth. Use another soft, dry cloth to wipe dry. Do not use any detergent or alcohol to clean the device.
- Ensure the device enclosure is intact before providing power to the device
- Disconnect the device from power before removing the board from its enclosure.

Disposal note in accordance with Symphony Energy and WEEE Directive 2012/19/EU

The device, as well as all the individual parts, must not be disposed of with household waste or industrial waste. You are obliged to dispose of the device at the end of its service life in accordance with the requirements of Symphony Energy in order to protect the environment and to reduce waste through recycling. For additional information and how to carry out disposal, please contact the certified disposal service providers. The sensors contain a lithium battery, which must be disposed of separately.

Contents

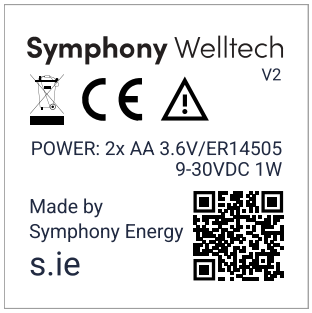
Description

Symphony Welltech is a versatile indoor air quality and environmental sensor designed for smart buildings and healthy indoor environments. Installed on a wall or ceiling using a discreet room-sensor enclosure, it continuously monitors critical parameters affecting comfort and air quality.

The device integrates multiple internal sensors to measure temperature, humidity, CO_2, TVOC, NOx, light levels, ambient noise, particulate matter (PM2.5, PM4, PM10), and motion.

Data can be transmitted wirelessly via Wi-Fi or LoRaWAN, or through Modbus for seamless integration with building management systems. Symphony Welltech supports both mains and battery power, operating from a 9–30 VDC supply or two 3.6 V AA batteries, offering flexible deployment options across a wide range of applications.

The following label is located on the front of the backplate.



Features

Sensors

	Welltech Power	Welltech Battery
Ambient Air Temperature	✓	✓
Relative Humidity	✓	✓
Light Intensity	✓	✓
CO_2	✓	✓
Motion	✓	✓
TVOC	✓	✓*
NOx	✓	
PM1, PM2.5, PM4, and PM10 Levels	✓	
Air Pressure	✓	
Ambient Noise	✓**	

Inputs & Outputs

1 x Digital Input (dry contact)	✓	✓
1 x Analog Input (0-10V)	✓	
1 x Analog Output (0-10V)	✓	
1 x Digital Output (Relay) **	✓	

*As of Q1 2026, **Optional

Abilities

Installation via screws or double-sided tape

Over-the-air configurable

Battery life: 3-10 years (depending on sampling rate)

Connectivity

LoRaWAN

Wi-Fi

- Web Server
- REST API / MQTT
- Modbus TCP
- Local Wi-Fi based D2D communication
- Over-the-air updates

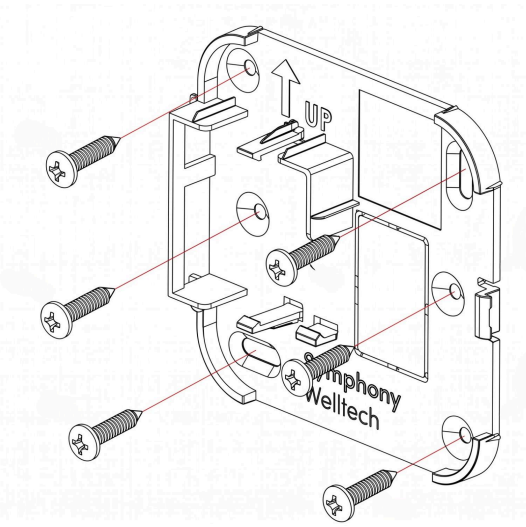
Supported Channel Plans

US902-928, EU863-870, AS915-928, KR920-923, RU864, IN865 & HK923

Compliance

CE approved, RoHS compliant

Installation & Maintenance



Wall Installation With Screws

Mounting and initial installation should only be carried out by a skilled installer. Insert screws as shown, each hole has a diameter of 4mm. Standard screw size: 4mm x 20mm

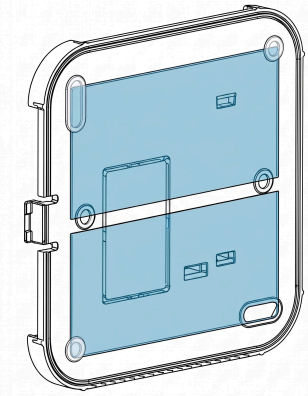
Placement Guidelines

For optimal performance the Welltech backplane should be installed at 1.5 meter height.
The Welltech should be installed not in direct airflow and not close to heat sources so to provide accurate temperature and C02 reading.

Wall Installation With Double-Sided Tape

Apply a double-sided tape to the backside of the backplane within the area marked blue on the diagram.

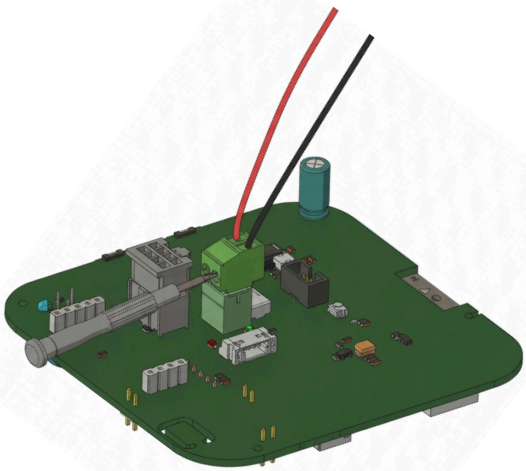
Place on the wall and apply pressure on the front of the backplane for approximately 45 seconds.



Powering The Welltech

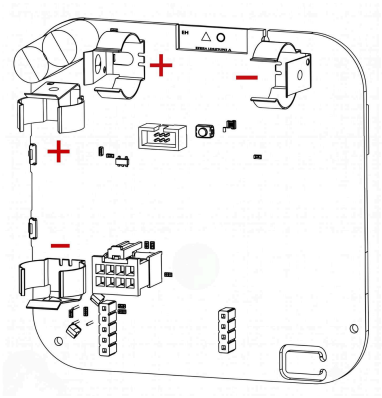
Welltech Power

Requires 24VDC power, source.
Connect power source to the back of the Welltech as shown in the image and fix the wires in place in the screw terminal with a screwdriver.
The power terminals are polarity dependent and have a reverse polarity protection.



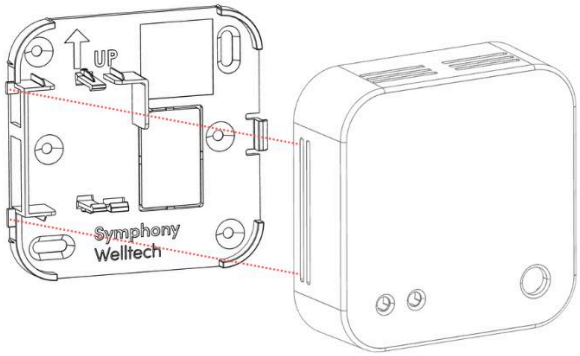
Welltech Battery

The Welltech is powered on by the insertion of two AA size 3.6V batteries.
Insert the two batteries with the polarities detailed in the diagram.



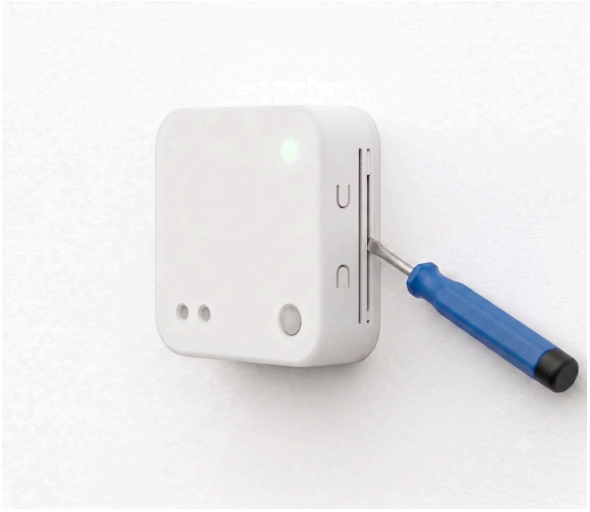
Mounting The Welltech Onto The Backplane

Line the two protruding clips on the backplane to the back groove on the the Welltech as shown.
Once the clips are in the groove, rotate the Welltech until it is secured to the clip on the other side of the backplane.



Battery Replacement

1. Remove the back panel of the sensor with a small screwdriver using the small dent on the right side of the sensor circled in red below. Push outwards to release the lock from the backplate.
2. The Symphony Welltech requires 9-30V DC or two AA size 3.6V batteries. The battery type is 3.6V Lithium Battery (ER14505).
3. Close the box the opposite way you opened it.



Battery Installation / Replacement

- Welltech use 2 EVE ER14505 AA size 3.6 Volt Lithium Thionyl Chloride (LiSOCl2) batteries (non-rechargeable) or direct equivalent.
- No other batteries are approved for use in the device.
- Lithium Thionyl Chloride batteries have very high energy capacity and must be used and handled with care.

Service & Maintenance

No serviceable parts inside. If service is needed other than battery replacement, please contact your distributor.

Configuration

Sensor Configuration

All sensor settings will be configured by Symphony Energy for your specific use. If you need any special configuration, please contact us to arrange an engineer visit.

Sensor Behaviour

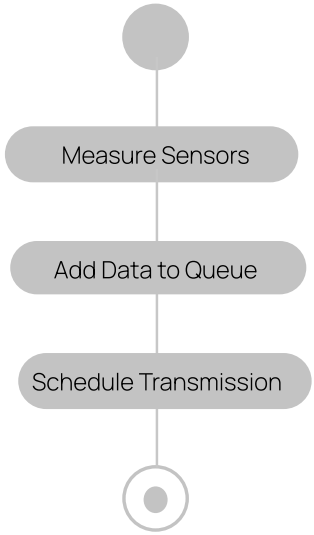
Sensor start-up

1. When the sensor starts up, it loads configuration from the internal memory.
2. The front LED will go blue when it tries to join the LoraWAN network. It will try to join every 30 seconds initially. This interval will increase to save power.
3. After successful connection to a network the LED will blink green, the sensor sends a settings packet and enters sampling mode.

Sampling Mode/Periodic Measurement

The sensor makes periodic measurements according to the sampling configurations and schedules a transmission.

The Welltech sensors gather information periodically, each sensor according to the specific user configuration.
This information is added to a queue and waits until regularly repeating transmission to the gateway.



TVOC Sensor Behaviour

The TVOC sensor needs an initial stabilization time to reach full functionality. This time may vary; you should expect a few days up to one week. Note that it is the same behaviour for each start-up. TVOC sensor measurement is only available in powered mode only since it requires high levels of consumption.

CO2 Sensor Behaviour

Due to delivery and handling, the CO2 sensor may give false values for the first three (3) ABC-periods. These false values do not indicate that the sensor needs manual calibration. After approximately 7 days the sensor will be self-calibrated. Forced calibration is not required.

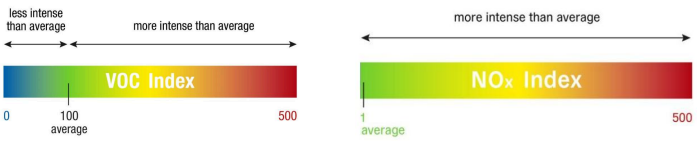
LED Colour Representation

- Red, yellow and green represent the health of the IAQ levels
- Blue is when trying to join the lorawan
- Purple blinks when sending a sample

Specifications

Sensor Payload Format

The device uses the standard Symphony payload format. For Wi-Fi uses JSON with self-explanatory format. For Modbus uses specific registers. For more specific documentation please contact us at support@symphonyenergy.com.

Power Supply	9-30Vdc 1W or 2 x AA 14500 3.6V battery
Battery Type	AA 14505 (Li-SOCl2)
EU Directives Compliance	RoHS 2011/65/EU I WEEE 2012/19/EU
Radio Protocol	Lora WAN®, Wi-Fi, BLE
Radio Frequency Band	US902-928, EU863-870, AS923, AU915-928, KR920-923, RU864, IN865 & HK923
Recommended Install. Height	1.5 metres
Operating Conditions	0 to 50°C I 0 to 85% RH (non-condensing)
Temperature	Range: 0 – 40°C I Resolution: 0.1°C I Accuracy: ± 0.2°C
Humidity	Range: 0 – 100% I Resolution: 0.1% I Accuracy: ± 1.5% RH
Light	Range: 0.1 – 65536 Lux I Resolution: 0.1 Lux
CO2	Range: 400 to 5000 ppm I Resolution: 1 ppm I Accuracy: ± 30 ppm
TVOC & NOx	
PM	Range: 0 to 1000 ug/m3 I Resolution: 1 ug/m3 I Accuracy: ± 10 ug/m3
IP Rating	2X Effective against fingers or similar objects. No protection against ingress of water
Dimensions and Weight	92.2 x 92.2 x 31 mm 150 grams
Battery Life	Up to 10 years depending on settings and environmental factors

Regulations

Legal Notices

All information, including, but not limited to, information regarding the features, functionality, and/or other product specification, are subject to change without notice. Symphony reserves all rights to revise or update its products, software, or documentation without any obligation to notify any individual or entity. Symphony Welltech and Symphony Welltech logo are trademarks of Symphony Energy.

All other brands and product names referred to herein are trademarks of their respective holders.

Declaration of Conformity

We, Symphony Energy, hereby declare under our sole responsibility that the product Symphony Welltech is in conformity with the provisions of the European law relating to the Electromagnetic Compatibility Directive 2014/30/EU and 2014/53/EU. The product is also in conformity with the RoHS directive 2011/65/EU.

Symphony Energy
4 Aran Centre,
Blessington Business Park,
Blessington,
Co. Wicklow
W91 WT02

Contact
support@symphonyenergy.com

Website
symphonyenergy.com