

# WEATHER

## Compact Weather Stations

### Model 9620 Series



#### Overview

The Model 9620 Series Compact Weather Stations are low-cost, light-weight weather stations for the acquisition of a variety of meteorological measurements. Uses range from environmental data logging to road traffic management and more. The portable design of the 9620 Series makes them ideal for a variety of unique applications while providing the same level of accuracy and dependability that you get with ADB Safegate's modular sensor systems.

The 9620 Compact Weather Stations may be used on a standalone basis connected to your own data logging system, or may be connected to either the Model 1192 Data Collection Platform or the Model 2715 Universal Power and Communication Module. Both ADB Safegate units provide a power, communication, and data aggregation capability to allow the 9620 Compact Weather Stations to be used as an automated weather observation system.

#### Accuracy by Design

The 9620 weather stations measure air temperature by way of a highly accurate NTC resistor. Humidity is measured using a capacitive humidity sensor. These sensors are located in a ventilated housing with radiation protection to keep the effects of external influences (such as solar radiation) as low as possible. This allows for highly accurate measurements.

These two measurements allow additional variables such as dew point, absolute humidity, and mixing ratio to be calculated.

Absolute pressure is measured using a built-in sensor (MEMS). The relative air pressure referenced to sea level is calculated using the barometric formula with the aid of the local altitude, which is user-configurable.

#### Ordering Information

Parameter	Model						
	9620	9621	9622	9623	9624	9625	9626
Temperature/Humidity		X	X	X	X	X	X
Air Pressure		X	X	X	X	X	X
Precipitation			X		X		
Wind Speed/Direction	X			X	X		X
Compass	X			X	X		X
Solar Radiation						X	X

The 9620 weather stations use radar technology to measure precipitation. The precipitation sensor works with a 24 GHz Doppler radar, which measures the drop speed and calculates precipitation quantity and type by correlating drop size and speed.

The gathered values of air temperature, humidity, and air pressure allow the 9620 weather stations to calculate air density.

The Ultrasonic Wind Sensor built into all 9620 weather stations, uses 4 ultrasound sensors that take cyclical measurement in all directions. The resulting wind speed and direction are calculated from the measured run-time sound differential.

The integrated electronic compass can be used to check the north/south adjustment of the sensor housing for wind direction measurement. The compass is also used to calculate the compass-corrected wind direction.

The precipitation and wind sensors are heated for operation at cold temperatures.

#### Parameters Measured

Several of these parameters are measured, with the specific ones dependent on the sensor model.

- Precipitation
- Wind Direction
- Wind Speed
- Air Temperature
- Relative Humidity
- Air Pressure
- Compass Direction
- Solar Radiation

# Compact Weather Stations

## Specifications

Parameter	Specification
<b>Temperature</b>	
Principle	NTC
Measuring Range	-50°C to +60°C
Accuracy	±0.2°C (-20°C to +50°C) otherwise ±0.5°C (> -30°C)
<b>Relative Humidity</b>	
Principle	capacitive
Measuring Range	0 – 100% RH
Accuracy	±2% RH
<b>Air Pressure</b>	
Principle	MEMS capacitive
Measuring Range	300 – 1200 hPa
Accuracy	±1.5 hPa
<b>Wind Speed</b>	
Principle	ultrasonic
Measuring Range	0 – 60 m/s
Accuracy	±0.3 m/s or ±3%
<b>Wind Direction</b>	
Principle	ultrasonic
Measuring Range	0 – 359.9° (full circle 0 – 360°)
Accuracy	±3°
<b>Precipitation Intensity</b>	
Resolution	0.01 mm
Measuring Range	drop size 0.3 – 0.5 mm
Reproducibility	typ. >90%
Precipitation Type	rain/snow

Parameter	Specification
<b>Compass</b>	
Measurement Process	integrated electronic compass
Measuring Range	0 to 359.9°
Resolution	1.0°
Accuracy	±10°
Sampling Interval	5 min
<b>Solar Radiation</b>	
Measurement Process	thermopile pyranometer
Measuring Range	0.0 to 2000.0 W/m <sup>2</sup>
Resolution	< 1 W/m <sup>2</sup>
Sampling Interval	10 s
<b>General Specifications</b>	
Power Requirements	12 – 24 VDC ±10% <4 V·A (without heating)
Heating	40 V·A at 24 VDC
Housing	plastic (PC)
Housing Protection Type	IP66 (NEMA 4X)
Interface	RS-485 (half-duplex)
Operating Temperature	-50°C to +60°C
Storage Temperature	-50°C to +70°C
Relative Humidity	0 – 100% RH
Mounting	stainless steel bracket for mast with diameter 60 – 76 mm

## Dimensions & Weights\*

Dimensions	15 cm D x 34.5 cm H
Weight	2.2 kg

\* Dimensions & weights vary by model.



9620

9621

9622

9623

9624

9625

9626