



FS6002

Weather station with ultrasonic sensors, active output (0-10 V),
digital output (Modbus RTU)

Measuring size: temperature, rel. humidity, air pressure, brightness, precipitation,
wind speed, wind direction

Output: Modbus RTU, 0-10 V

Highlights: doppler radar, ultrasonic sensor



Description

The weather station FS6002 is used to detect the most important meteorological parameters. Depending on the configuration, the device provides the measurement data of wind speed / direction, air temperature, relative humidity, barometric air pressure, precipitation and brightness.

For a correct determination of the wind direction in mobile use of the weather station, a magnetic compass is integrated in all device variants. Furthermore, a built-in GPS receiver is used to determine the exact world time and geographical position.

The wind speed and wind direction is determined by the detection of the 2-dimensional horizontal components of mutually perpendicular ultrasonic measuring sections. In addition, the sound velocity can be used to calculate and output the acoustic virtual temperature. Due to the measuring principle of the ultrasonic transit time measurement, the device is ideally suited to the inertia-free wind gust and peak value measurement.

The air temperature and relative humidity are measured by an integrated and accurate combination sensor, which is protected against harmful environmental influences by a water-impermeable but water vapor-open microporous filter. The integrated pressure sensor based on MEMs (micro-electro-mechanical-system) technology is also protected with such a filter.

In the measurement of precipitation intensity, the precipitate is measured and calculated contactlessly via the back-reflected signal of a Doppler radar. The intensity of the last minute is extrapolated for the output to one hour.

The brightness is recorded by 4 photosensors with a spectral sensitivity curve adapted to the sensitivity of the eyes and the intensity ratio is used to calculate the direction of the light source.

The weather station has a built-in heater. This largely prevents an ice and snow on the device.

The data output can be analog, as standard signal and / or as digital (MODBUS RTU). 8 analog output channels (0-10 V) are available, 5 channels of which can optionally be configured universally.



Technical Specifications

Measurement range wind speed	0-60 m/s, resolution 0,1 m/s
Measuring range wind direction	0-360°, resolution 1°
Measurement range temp.	-40...+80°C, Auflösung 0,1 K
Measurement range r.H.	0-100% r.h., resolution 0,1% r.h.
Measurement range air pressure	500-1200 hPa, resolution 0,1 hPa
Measurement range brightness	0-150 kLux, resolution ca. 0,3% f. mv.
Measurement range precipitation	0-999 mm/h, resolution 0,001 mm/h
Accuracy wind speed	±0,3 m/s (< 5 m/s, rms - average over 360°), else ±3% f. measured value (rms - average over 360°)
Accuracy wind direction	±2,0° at ws > 2 m/s
Accuracy temperature	±0,3 K (25°C), ±1,0 K (-40...+80°C)
Accuracy humidity	±1,8% (10-90% r.H.), ±3% (0-100% r.H.)
Accuracy air pressure	±0,1 hPa (0...+65°C, 800-1100 hPa), ±1 hPa (-40...+65°C, 500-1200 hPa)
Accuracy brightness	±3% from relative measured value, ±2° in direct sunlight without cloud cover
Accuracy precipitation	At 95% of precipitation deviations smaller than 10% compared to laser precipitation monitor (reference)
Supply voltage	6...40 V DC or 10...28 V AC 50 Hz / 60 Hz (without heating), 24 V AC/DC ±15% (with heating)
Analogue output	0-10 V, resolution 16 bit
Digital output	Modbus RTU
Electrical connection	19-pole connector, cable 16 x 0,25 alternative 8 x 0,25 (cable not included)
Housing	polycarbonate PC, UV-stabilised, white RAL 9003
Weight	ca. 900 g
Protection type	IP67
Dimensions	Ø 150 x 220 / 175 mm
Working temperature	-40...+70°C
Storage temperature	-20...+70°C
Installation	Mast tube R 1½ inch (Ø 48.3 mm)
Approvals	CE, EAC, RoHS



Variants

Article Number		
Description	Output	Equipment
FS6002-MBRU-A1B1H1R1T1W1W2-G		
Wind: 0-60 m/s, 0-360°, Temperature: -40...+80°C, Humidity: 0-100% r.h., Air pressure: 500-1200 hPa, Brightness: 0-150 kLux, Precipitation: 0-999 mm/h	0-10 V, Modbus RTU	GPS
FS6002-MBRU-A1H1T1W1W2		
Wind: 0-60 m/s, 0-360°, Temperature: -40...+80°C, Humidity: 0-100% r.h., Air pressure: 500-1200 hPa	0-10 V, Modbus RTU	-
FS6002-MBRU-B1R1W1W2-G		
Wind: 0-60 m/s, 0-360°, Brightness: 0-150 kLux, Precipitation: 0-999 mm/h	0-10 V, Modbus RTU	GPS
FS6002-MBRU-W1W2		
Wind: 0-60 m/s, 0-360°	0-10 V, Modbus RTU	-

Accessories

ZM/O

Meteorology accessories



FS6901

Stand with mast tube



FS6921

Datalogger DLU





Dimensional Drawing

