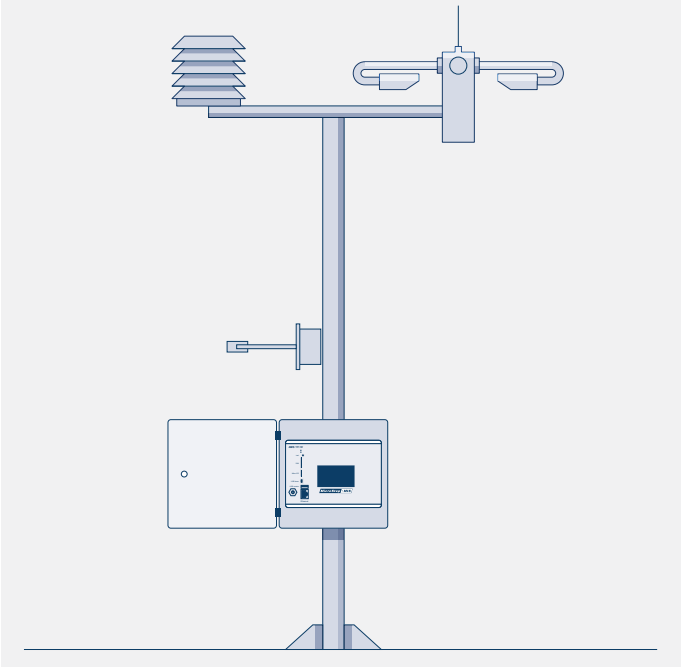
Phenomen 51

Present Weather Detector Multi Sensor Kit

Revolutionary compilation of industry-proven devices, Phenomen 51 is a highly reliable choice for WMO 4680 table weather codes detection.



Data Logger
AMS 111 II

Humidity and
Temperature Probe

Visibility Sensor

Low power consumption

Robust build

Measurement of solid and liquid precipitation

Accurate visibility measurement

Typical Applications

- Professional automatic weather stations
- Airport weather observation systems
- Hydrological and road weather systems
- Scientific research

Phenomen 51 involves:

- Visibility and Present Weather Sensor
- Temperature Sensor & Humidity Sensor
- MicroStep-MIS' advanced Weather Processing Algorithm technology incorporated into the IMS4 application software (installations with PC) or into the AMS 111 Data Logger (installations without PC)

The selected combination of sensors enables the Phenomen 51 system to ensure stable, reliable, and accurate measurement of the following parameters:

- Visibility and visibility related phenomena
- Liquid and solid precipitation, precipitation intensity

Multi sensor kit Phenomen 51 is a result of more than 10 years of MicroStep-MIS' experience with the visibility and present weather sensors. The Phenomen 51 brings:

- Highly competitive price
- Low maintenance requirements
- Robustness and resistance to windy and extreme environment conditions
- Low power consumption < 8 W and weight < 9 kg

Technical specification

Operating conditions

IP Protection	IP 66
Operating temperature	–40 °C to +65 °C
Storage temperature	–40 °C to +80 °C
Operating humidity	0 % to 100 %RH
Output	RS-232 / RS-485

Power supply

Voltage	10.5 V to 16 V DC
Voltage for heating	24 V AC ±15 %

Visibility and present weather measurement

Measures	visibility, present and past weather (MOR & EXCO)
Output	serial data
Range (visibility)	default 10 m to 75 km
Measurement error	≤ 4.5 % at 600 m ≤ 5.0 % at 1,500 m ≤ 5.1 % at 2 km ≤ 12.5 % at 15 km ≤ 20 % at 30 km
Measurement resolution	1 m or 10 m (default)
Measurement principle	forward scatter meter with 39° to 51° angle, centered at 45°
Precipitation detection threshold	rain: 0.015 mm/hr (0.0006 in/hr) snow: 0.0015 mm/hr (0.00006 in/hr)
Maximum rain rate	~500 mm/hr (20 in/hr)
Rain intensity accuracy	≤ 5 %

Relative humidity measurement

Sensor	RHT175 Relative Humidity and Temperature Probe
Measurement range	0 % to 100 %RH
Resolution	0.1 %RH
Accuracy (@ 25 °C)	±1 %RH

PT100 Temperature Probe

Accuracy class	PT100 1/5 DIN: ±0.10 °C
Resolution	0.01 °C
Measurement range	–50 °C to +70 °C
Recommended current	2 mA max.

Detected weather codes (WMO 4680)

00	No significant weather observed
04	Haze or smoke, or dust in suspension in the air, visibility equal to, or greater than 1 km
05	Haze or smoke, or dust in suspension in the air, visibility less than 1 km
10	Mist
20	Fog*
21	Precipitation*
22	Drizzle (not freezing) or snow grains*
23	Rain (not freezing)*
24	Snow*
25	Freezing rain or freezing drizzle*
30	Fog
31	Fog or ice fog, patches
32	For or ice fog, has become thinner during the past hour
33	Fog or ice fog, no appreciable change during the past hour
34	Fog or ice fog, has begun or become thicker during the past hour
35	Freezing fog
40	Precipitation
50	Drizzle
51	Drizzle, not freezing, slight
52	Drizzle, not freezing, moderate
53	Drizzle, not freezing, heavy
54	Drizzle, freezing, slight
55	Drizzle, freezing, moderate
56	Drizzle, freezing, heavy
57	Drizzle and rain, slight
58	Drizzle and rain, moderate or heavy
60	Rain
61	Rain, not freezing, slight
62	Rain, not freezing, moderate
63	Rain, not freezing, heavy
64	Rain, freezing, slight
65	Rain, freezing, moderate
66	Rain, freezing, heavy
67	Rain (or drizzle) and snow, light
68	Rain (or drizzle) and snow, moderate or heavy
70	Snow
71	Snow, light
72	Snow, moderate
73	Snow, heavy
74	Ice pellets, slight
75	Ice pellets, moderate
76	Ice pellets, heavy

** Codes 20 to 25 are used to report precipitation or fog at the station during the preceding hour but not at the time of observation*

77	Snow grains
78	Ice Crystals
81	Rain showers, slight
82	Rain showers, moderate
83	Rain showers, heavy
84	Rain showers, violent (>32 mm/h)
85	Snow showers, slight
86	Snow showers, moderate
87	Snow showers, heavy
88	Soft hail (reserved in the WMO table)
89	Hail

Phenomen 51 options	Sensors included	Present weather algorithms processing	Order CODE
Standalone device	• Visibility and Present Weather Sensor • Temperature & Humidity Sensor RHT175 • Thermometer PT100	• Data logger included • Data processing in data logger	P51-SD
Partially integrated in the IMS4 AWOS Automated Weather Observation System	• Visibility and Present Weather Sensor (IMS4 AWOS provides temperature & humidity values)	• No data logger • Data processing in the IMS4 AWOS software	P51-PI
Fully integrated in the IMS4 AWOS Automated Weather Observation System	• none (IMS4 AWOS provides all necessary values)	• No data logger • Data processing in the IMS4 AWOS software	P51-IMS/SW

All specifications are subject to change without prior notice.
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