

FOREST FIRE MONITORING / DATA SHEET

SS1000U-11

Forest Fire Prevention Weather Station

A fixed forest-fire prevention station combining weather sensors, a rain gauge, an outdoor control enclosure, solar backup and remote alarm / data links.

Overview

- Monitors wind, air temperature / humidity, pressure, noise, CO₂, illuminance, rainfall and human presence according to the selected configuration.
- One RS485 master acquires transmitter data while an RS485 slave interface exposes station values to an external host.
- 4G or RJ45 upload, 220 VAC or solar dual supply, and optional relay outputs support unattended field operation.
- Voice alerts provide editable warnings when a person enters the monitored area; the orange structure remains highly visible outdoors.



Power 220 VAC / solar	Data link 4G / RJ45	Monitoring 8 element groups	Pole 2.8 m fixed
Key Advantages • Rainfall input provides cumulative, instantaneous, daily and current rainfall values. • Voice alarm, human-presence sensing and optional two-relay output support prevention and remote response. • Dual mains / solar supply keeps the station operating when utility power is unavailable; battery autonomy is about 7 days.		Applications • Forest-fire prevention, patrol and early-warning stations. • Forestry, ecological, environmental and remote-area monitoring. • Outdoor sites requiring weather data, voice alerts and long-term telemetry.	

SENSOR DATA

Forest Fire Monitoring Elements

Measured element	Range / capability	Register / notes
Wind speed / force	0–70 m/s; 0–12 levels	Registers 500 / 501; factors 0.1 / 1
Wind direction	8-point direction + 0–359°	Registers 502 / 503
Air temperature / humidity	–40 to +120 °C; 0–99%RH	Registers 520 / 521; factor 0.1
Noise level	30–120 dB	Register 522; factor 0.1
CO ₂ concentration	0–5000 ppm	Register 523; factor 1
Atmospheric pressure	0–120 kPa	Register 524; factor 0.1
Illuminance	0–200,000 Lux	Registers 525 / 526; 32-bit value
Rainfall	Cumulative, current, instantaneous and daily	Registers 531–535; default pulse 0.2 mm
Human presence	0 = no person; 1 = person detected	Register 554; optional detector

Rainfall values use the default 0.2 mm pulse equivalent; sensor performance follows the selected connected transmitter specifications.

SYSTEM DATA

Item	Specification
Upload interval	30–65535 s; default 300 s
Station address	Unique 8-digit address for management and identification
Network link	4G upload or RJ45 Ethernet upload; the two modes cannot coexist
Voice alarm	Delay 0–65535 s, default 5 s; interval 0–65535 s, default 30 s; editable message
Relay output	Optional 2 dry-contact outputs; 250 VAC / 30 VDC, 5 A
Solar backup	Solar power system with battery autonomy of approximately 7 days

ACQUISITION UNIT

Outdoor Control Enclosure and Power

Item	Specification
Mains supply	220 VAC AC input
Solar supply	Solar panel and battery system; mains supply has priority
RS485 master	Acquires connected transmitters; longest communication distance ≥ 1500 m
RS485 slave	External host can query weather-station data
Communication	4G or RJ45 Ethernet upload; mutually exclusive modes
Relay outputs	Optional 2 dry contacts; 250 VAC / 30 VDC, 5 A
Rainfall input	1 tipping-bucket pulse input; default 0.2 mm equivalent
Upload interval	30–65535 s; default 300 s



Fixed pole station with solar backup and control box

Mounting Options

- Secure the two-section 2.8 m pole and cross-arms with fixed expansion bolts.
- Face the solar panel south, keep it unshaded and keep its lower edge ≥ 1.7 m above ground.
- Point the wind-direction arrow north; route cables inside the pole and place the 4G antenna outside.

DIMENSIONS & PACKAGE

Case, Connections and Standard Package

Assembly	Approx. specification	Notes
Pole	2.8 m total (1.5 m + 1.3 m sections)	Fixed expansion-bolt installation
Cross-arm	Three crossbars with mounting plates	Wind, weather-box and rain-gauge mounting
Control box	Outdoor multifunction enclosure with key	Controller, power and wiring protection
Solar system	Solar panel + battery	220 VAC / solar dual supply

Assembly	Approx. specification	Notes
Included / Option-Dependent • Louver-box multi-element transmitter, wind-speed sensor, wind-direction sensor and stainless rain gauge. • 2.8 m pole, three crossbars, mounting plates, clamps, waterproof cables and multifunction control box. • Solar panel / battery system, 4G antenna, fasteners and installation accessories according to configuration.		Selectable Elements • Wind speed / force, wind direction, air temperature / humidity, noise, CO₂, pressure and illuminance. • Rainfall: cumulative, instantaneous, daily and current; human-presence detector and two relays are optional. • Choose 4G or RJ45 Ethernet upload and 220 VAC or solar power for the deployment site.

COMMUNICATION

RS485 / Modbus-RTU Interface

Parameter	Setting
RS485 master	Connects selected transmitters; longest communication distance ≥ 1500 m
RS485 slave	External host may query weather-station data
Protocol	Modbus-RTU
Encoding	8-bit binary; 8 data bits; no parity; 1 stop bit
Baud rate	1200–115200 bit/s; default 4800 bit/s
CRC / function	16-bit CRC; function code 0x03 for register reads
Register group	Data mapping
500–503	Wind speed, wind force, 8-point direction and 0–359° direction
520–524	Air humidity, temperature, noise, CO ₂ concentration and pressure
525–526	Illuminance high and low 16-bit words
531–535	Cumulative, current, instantaneous and daily rainfall values
554	Human-presence detector state: 0 = no person; 1 = person

INSTALLATION & OPERATION

Parameters, Alarms and Platform

Parameters & Alarms • Use the Bluetooth configuration app to set the 8-digit address, target address / port and upload interval. • Configure voice-alarm delay, interval, editable warning content, human-presence status and relay state. • Check ICCID, device time and login password before unattended deployment.	Platform & Power • Use 4G to send data to the cloud platform, or use RJ45 Ethernet for local software; the modes cannot coexist. • Give the solar panel an unobstructed south-facing position and keep the battery enclosure protected. • Route cables through the pole, secure the rain gauge and verify the wind-direction orientation before powering on.
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SERVICE

Installation and Care

Confirm the pole, control box, sensors, rain gauge, antenna and power sources are firmly installed before powering on. Verify unique Modbus addresses, cable protection, solar orientation and enclosure sealing during each service visit. Do not use this product as a safety or emergency-stop device; operate it only within the stated environmental limits and follow the supplied instructions.

CONTACT / SUPPORT

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