



RK900-01 PV Automatic Weather Station



Overview

RK900-01 PV environment automatic weather station is an intelligent monitoring system specially designed for photovoltaic power stations. By integrating high-precision sensors and IoT technology, the key environmental parameters related to the operation of photovoltaic power station are collected and analyzed in real time, providing data support for the efficiency optimization and safety management of the power station.

Features

Multi-parameter monitoring	Recorder supports remote updates
High measurement accuracy	Support for the API interface
Strong environmental adaptability	Built-in surge protection
Automatic data backup	Support multiple power supply modes
Multiple upload protocols are supported	Easy to operate

Applications

Improve the efficiency of power generation, and by accurately adjusting the photovoltaic panel angle, cleaning cycle and other parameters, the power generation efficiency of the power station can be increased by 5% -15%;

Optimize the operation and maintenance strategy, predict the performance decline of the equipment combined with meteorological data, realize preventive maintenance, and reduce the risk of fault shutdown;

We will support low-carbon development, reduce traditional energy dependence, and help photovoltaic power stations achieve the goal of low-carbon and intelligent operation.

System Unit

Item	Details	Remarks
Data logger	Meteorological data acquisition, computational analysis, display, storage and communication (4G/Ethernet/WIFI), 7"LCD, Support downloading historical data locally	Select one as needed
Communication gateway	RS485 gateway, 4g gateway, wifi gateway, and ethernet gateway optional	
Sensors and cables	Wind speed sensor, wind direction sensor, atmospheric temperature, atmospheric humidity, panel temperature, total solar radiation, scattered radiation, direct radiation, etc	Depends on user requirements
Multilayer radiation shield (shutter box)	For install atmospheric temperature and humidity sensor	
Protective box	For the installation of data loggers, solar charging controller, battery / power supply, etc	
Solar energy power supply system	Including solar panels and bracket, solar charging controller, battery	Optional
Vertical rod and mounting parts	Height: 2.5m, including lightning protection device, other height can be customized	



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Main Measurement Parameters

Item	Range	Resolution	Accuracy	Remarks
Wind speed	0-45m/s	0.1m/s	±（0.3±0.03v）m/s	Depends on user requirements
Wind direction	0-360°	1°	±3°	
Air temperature	-40℃-+60℃	0.1℃	±0.5℃	
Air humidity	0-100%RH	0.1%RH	±3%	
PV module temperature	-50℃-+100℃	0.1℃	±0.5℃	
Total horizontal radiation (GHI)	0-2000W/m²	1W/m²	Class B/C	
Tilted total radiation（GTI）	0-2000W/m²	1W/m²	Class B/C	
Direct radiation (DNI)	0-2000W/m²	1W/m²	Class B/C	Support by the automatic tracker
Scattered radiation (DHI)	0-2000W/m²	1W/m²	Class B/C	
Total horizontal radiation (daily cumulative)	Unit: Either kWh/m² or MJ/m²			Support by the automatic data logger
Total horizontal radiation (monthly cumulative)	Unit: Either kWh/m² or MJ/m²			
Total horizontal radiation (annual accumulation)	Unit: Either kWh/m² or MJ/m²			
Tilted total radiation (daily cumulative)	Unit: Either kWh/m² or MJ/m²			
Tilted total radiation (monthly cumulative)	Unit: Either kWh/m² or MJ/m²			
Tilted total radiation (annual accumulation)	Unit: Either kWh/m² or MJ/m²			
Hours of sunshine	Unit:H			
Hall voltage sensor (optional)	0-500V	1V	±0.5%	Roof power stations / distributed power stations
Hall current sensor (optional)	0-150A	0.1A	±0.5%	Roof power stations / distributed power stations

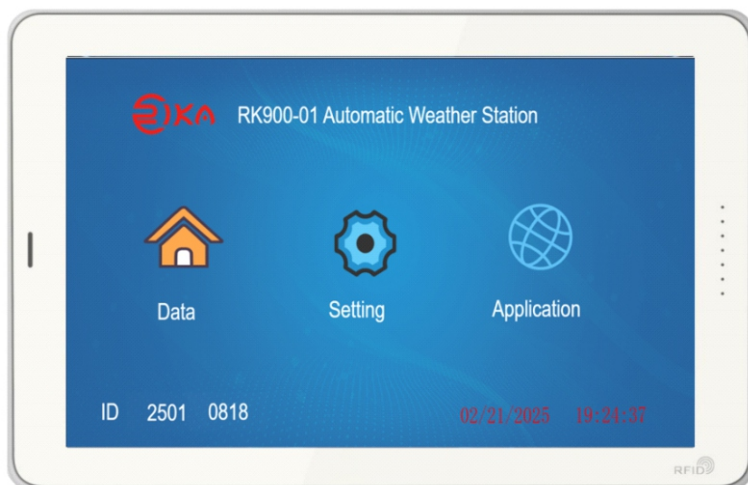
Data Logger and Gateway Comparison

Item	Data logger				Gateway			
					4G	Ethernet	WIFI	RS485
	RK600-07C	RK600-07C	RK600-07C	RK600-07C	RK600-17	RK600-17	RK600-17	RK600-17
Local display	Support	Support	Support	Support	/	/	/	/
Ethernet	Support	Support	Support	Support	/	Support	/	/
4G	/	Support	/	Support	Support	/	/	/
WIFI	/	/	Support	Support	/	/	Support	/
Rs485	Support	Support	Support	Support	/	/	/	Support
Remote upgrade	Support	Support	Support	Support	/	/	/	/
Average power consumption	3w	3w	3w	3w	1w	1w	1w	0.5w



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Data Logger



Item	Parameter
Display	7"LCD
Pixel	1024*600
Touch type	Resistance-type
Screen dormancy	Support
Backlight adjustable	Support
Communication status indication	Support
Store-in	4GB
Communication interface	1*RS232,2*RS485
Network	Ethernet (standard), 4G/ WIFI (optional)
Measuring parameters	32 max.
Storage time interval	1-240 minutes (adjustable)
U disk download	Support
Relay output	Customizable
Power protection	With surge protection, anti protection
CE	EN55022 & EN55024



Real-time data

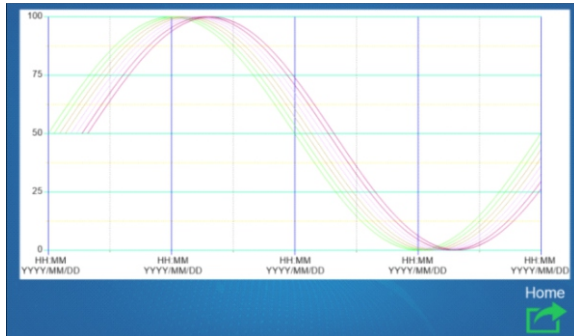
Time	Wind_speed	Wind_direction	Air_temperature	Air_humidity	Air_pressure	Rainfall	Solar_radiation	PM1_0	PM2_5	PM10
2024-12-17 10:42:20	0.812832	192	0.813721	85.9276	1009.47	0.00	0.00	52.2	83.4	126.4
2024-12-17 10:41:20	0.738427	144	0.813721	85.8406	1009.48	0.00	0.00	79.8	126.00	164.3
2024-12-17 10:40:20	0.711562	310	0.830853	85.775	1009.49	0.00	0.00	75.4	119.5	163.3
2024-12-17 10:39:20	0.425215	270	0.840094	85.6967	1009.5	0.00	0.00	72.3	121.6	147.3
2024-12-17 10:38:20	0.832296	190	0.862896	85.6433	1009.49	0.00	0.00	70.00	112.00	136.00

Data form

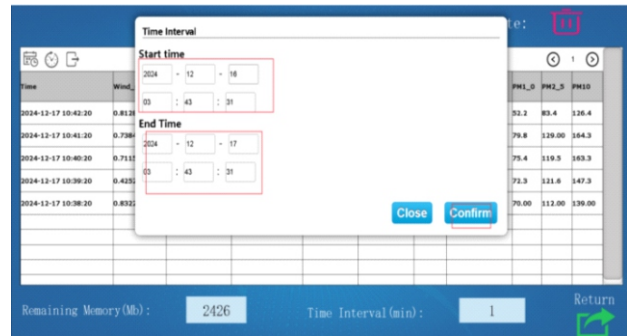


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Data Logger



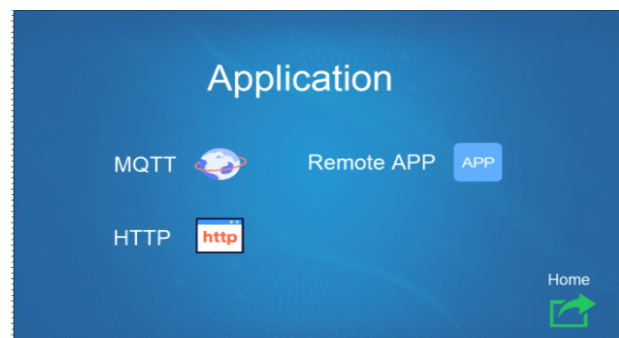
Historical curve



Historical data export



Setting interface



Server configuration

Revision time	Reviser	Current Version	Remarks
20250329	Michael	V5. 0	