

## AUTOMATIC RAIN GAUGE [ Telemetry]

**RK ENGINEERING CORPORATION**, make Automatic Rain Gauge Station **Model: [RK-ARG-200]** is a fully computerized, digital and self-contained power source system, fitted with data logger and batter charging solar panel with rechargeable, maintenance free battery charging solar panel with rechargeable, maintenance free batteries complete with sensors mounted on a tripod stand with sealed waterproof enclosure for data Logger, solar charger and battery. All sensors powered directly from data logger and no need of external power sources (until specified) standard system comes with facility to **transport data form data Logger to a P.C. through SD Card** 16x2 alphanumeric display and 1 X 4 keypad is provided at front panel of data logger for programming data logger and monitoring sensor reading at site without the help of computer. Data Logger having the facility for to transmitted the data Telemetry communication for real time rainfall monitoring.

### Specification of the Data logger

**Display:** 16 Characters x 2 Lines alphanumeric display. [Auto light on for the better visibility]

**Measured parameter:** Date, Time, Temperature (°c), Rainfall (mm), Battery Volts

**Real Time Clock:** Provided

- Stability long-term:  $\pm 1$  ppm / year
- Stability (temperature):  $\pm 3.5$  ppm or better form  $-40^{\circ}$  to  $85^{\circ}\text{C}$

**Sensor attached:** Rain Gauge, Temp and humidity (Optional at extra cost)

**Logging interval:** 1 min to 60 min. with facility to program log start time within next 24 hours

**Data Storage:** 16 GB (sufficient for more than 2 years of logging in 1 min. logging interval)

**Power supply:** 4.2 V Lithium ions (more than 2.6 year of life)

**Clock accuracy:**  $\pm 5$ seconds per year

**Battery Charging:** Through solar panel OR 220V AC (optional)

**Weatherproof enclosures:** Provided

**Operating Temperature:**  $-40$  to  $75^{\circ}\text{C}$

**Operation Humidity:** 0 to 95% no-condensing

**Data retrieval:** Through SD Card and GPRS telemetry OR RS 485 communication

**Tripod stands:** Provided

**Sensor Bracket:** Provided

**Enclosures:** IP 67 Weather Prof Enclosure

**Watchdog timer:** System reset upon Microprocessor failure

**Battery backup:** 10-day battery backup suitable for extreme weather condition.



### Specification of the Solar Panel, Solar Charger with Battery Pack



**Output Voltage** 6 Volt DC

**Wattage** 6 watt

Reverse Polarity Protection

Over Charging Current Protection

**Battery over Charge Protection**

Battery over Discharged Protection

Soft Start Charging or good health of battery

Battery Temperature measurement inside

Disconnect charging when temperature of batter goes high than normal

More than (10000 mAmp) battery pack provide

### Specification of the Rain Gauge Sensor Model: RK-S-TBRG-200

<b>Sensor</b>	:	Tipping Bucket Self-Empty
<b>Range</b>	:	500 mm / hour
<b>Resolution</b>	:	0.254 mm / 0.20 mm
<b>Catchment Area</b>	:	200 CM <sup>2</sup>
<b>Sensing</b>	:	Magnet & Reed Switch
<b>Capacity</b>	:	100 mm per hour; better than $\pm 4\%$
<b>Output</b>	:	Switch closure
<b>Material</b>	:	Aluminum with power coated paint
<b>Design</b>	:	Aerocon for remove the wind effect



# Meteorological Instruments

## Optional Sensor User Can Attached (on extra cost)

### TEMP. AND HUMIDITY SPECIFICATION



Measuring range temperature	-40° C to 123 ° C
Measuring humidity	0 to 100 %
Accuracy temperature	± 0.3 ° C @ 5 to 40° C
Accuracy rel. humidity	± 2% @ 20 to 80 %
Resolution of temperature	0.01 ° C Typical
Resolution rel. humidity	0.05 % RH Typical
Operating condition	-40°C to +70 °C @ 0...100 %
Supply voltage	0 to 5 volts
Weather shield	IP 65 provided
Dew point	Calculated Provided
Measuring range air pressure	300 hPa ~ 1100 hPa
Accuracy air pressure	±0.12hPa or better

## Accessories

SD Card with software for data Retrieval, Solar Panel, Battery Pack, Software, Enclosure, Tripod Stand and all sensor brackets.

### Data Retrieval Options

#### 1 SD Card

User pull out the SD card from the data logger with the help of the SD card reader copy and paste the excel file into your computer. No need of software (Quick and Easy way to get the data)

#### 2 GPRS Enabled Web-based Telemetry

For wireless data transfer from RK make data logger to our Web-Server. An arrangement of one post-paid GPRS-Active GSM SIM Cards is in your work of scope. There should be Network Coverage Availability at the installation site.

For Data Access free web-space will be provided for 1 year & will be chargeable afterwards.

**User Dashboard having the facility for the Rain fall SMS Alert System, Map View for location, Realtime Data, Data Analyzing, download excel sheet, Color Code Data Presentation, Graphs.**

### Specifications of GPRS 4G Modem

(GPRS Modem) is a general-purpose intelligent device for various remote monitoring applications. This device can be used for different applications and the embedded software loaded to this device determines the usage of the device

### Features of embedded Software:

A GPRS enabled SIM is supposed to be installed in the modem. Based on the SIM Operator, the GPRS settings have to be configured in the modem. Once a proper SIM card is inserted and the terminal is switched ON, it will automatically connect. The terminal will continuously monitor serial port for messages received from the device connected.

When modem receives a valid command in the serial port, it will take appropriate action based on the commands. (Send HTTP/Provide Network Status). Whenever the modem receives command from controller, it will be pushed through serial port. Stores Failed GPRS packets in non-volatile memory until system re-stores proper GPRS connection to server (zero data loss).

#### 3 RS 485 communication (optional)

User can receive data from the RS 485 at extra cost stored data will be transmitted by the data logger.



DATE	TIME	TEMP(DEG C)	RAINFALL(MM)	VOLTAGE
27-08-2021	16:47	30	0	3.37
27-08-2021	17:02	32.5	0	3.37
27-08-2021	17:17	30	0.8	3.37
27-08-2021	17:32	30	1.8	3.36
27-08-2021	17:47	29.25	10.2	3.36
27-08-2021	18:02	28.25	16.2	3.36
27-08-2021	18:17	27.75	17.2	3.36
27-08-2021	18:32	27.75	0.2	3.36
27-08-2021	18:47	28.25	0.2	3.36
27-08-2021	19:02	28.25	0	3.35
27-08-2021	19:17	28.25	0	3.36
27-08-2021	19:32	28.25	0	3.35
27-08-2021	19:47	28	0	3.36
27-08-2021	20:02	28	0	3.36
27-08-2021	20:17	27.75	0	3.36
27-08-2021	20:32	27.75	0	3.36
27-08-2021	20:47	27.75	0	3.35
27-08-2021	21:02	27.75	0	3.36
27-08-2021	21:17	27.75	0	3.36
27-08-2021	21:32	27.75	0	3.36
27-08-2021	21:47	27.75	0	3.35
27-08-2021	22:02	27.75	0	3.35

UJVNL DISCHARGE MONITORING SITE AT UTTARKASHI DISTRICT

Site Name: JOSHYARA BRIDGE

Project Name: Real Time Discharge at Joshyara Bridge (Inflow/Flow From Joshyara Barrage in Canal)

