# MANTENANCE OF GPRS BASED ARG

**AWS LAB**

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भारत मौसम विज्ञान विभाग
**INDIA METEOROLOGICAL DEPARTMENT**

# Definition of ARG

An automatic raingauge station (ARG) is defined as a "meteorological station at which observations are made and transmitted automatically".

*Its main purpose to make rainfall data available in real time*

**Conditions for ARG site selection**

**Meta data of ARG sites**

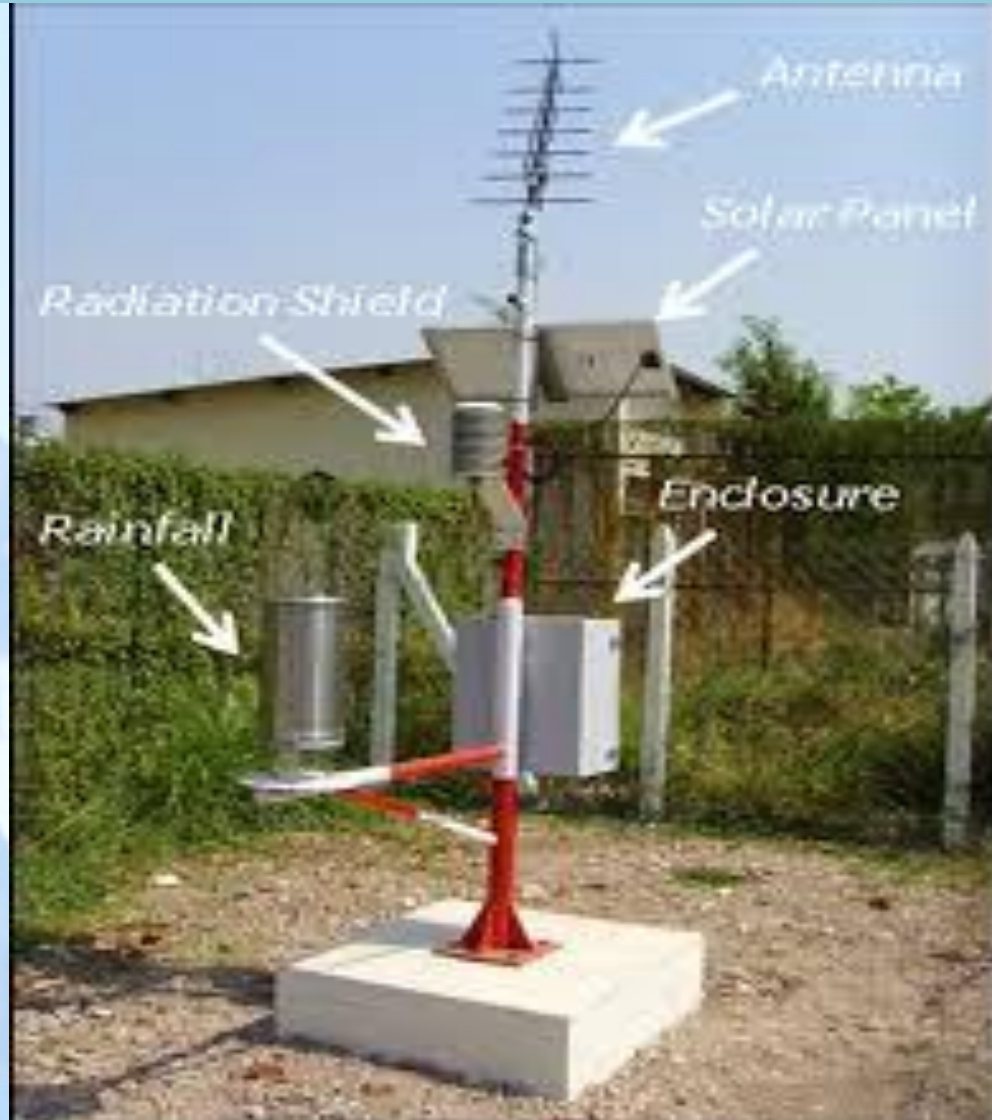**Selections of sensors as per ARG site requirement.**

# ARG NETWORK

❖ **1351 ARG INSTALLED ALL OVER INDIA.**

# SATELLITE BASED ARG

- ❑ **DATA LOGGER**
- ❑ **GPS ANTENNA**
- ❑ **UHF TRANSMITTER**
- ❑ **YAGI ANTENNA**
- ❑ **SMF BATTERY**
- ❑ **SOLAR CHARGE CONTROLLER**
- ❑ **SOLAR PANEL**
- ❑ **SENSORS-**
- ➢ **Temperature & Humidity Sensors**
- ➢ **TBRG sensors( rainfall sensors)**

# GPRS BASED ARG

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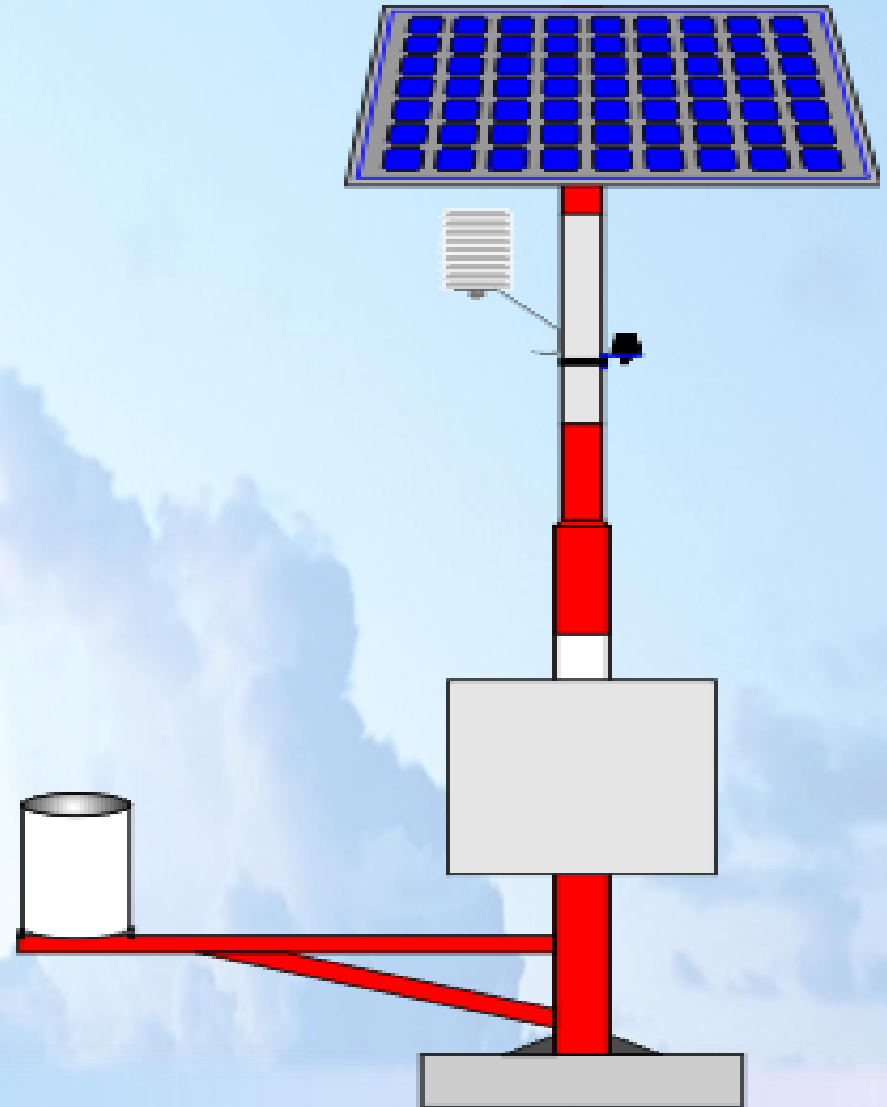
# GPRS based ARG

Multiple interfaces – Serial, Digital, Analog

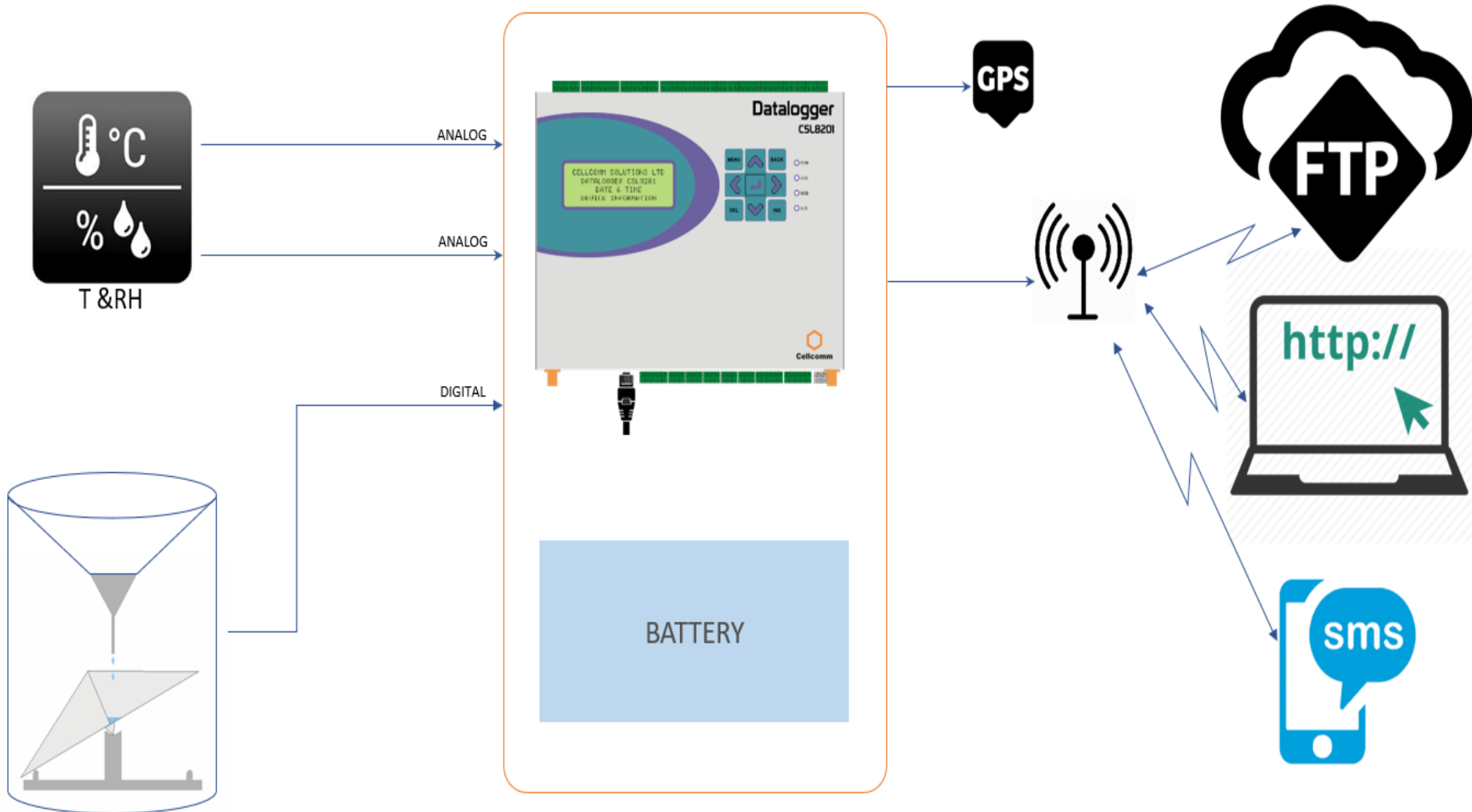Integrated LCD display and keypad

Built-in 4G/LTE modem for communication

Built-in GPS receiver

SDHC card storage, expandable upto 32GB

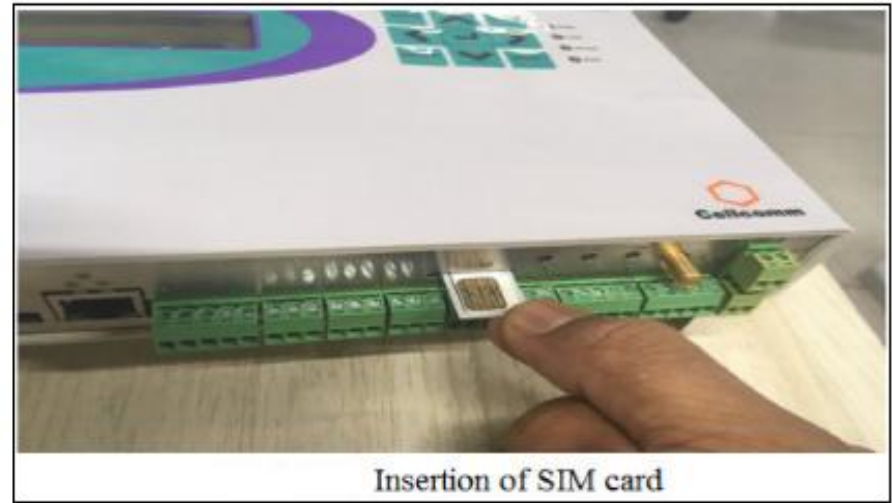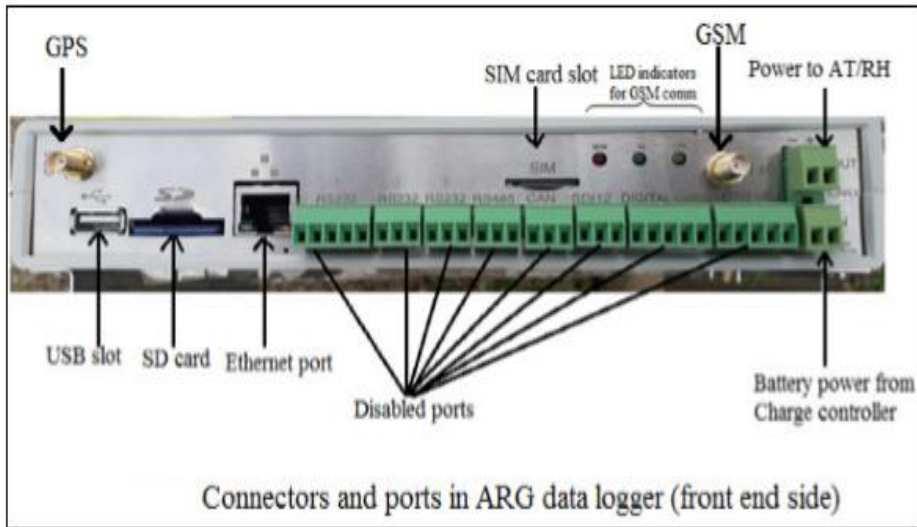USB interface for data copy, firmware upgrade

# Schematic Diagram

# ARG STATION

# CONNECTIONS



Connectors and ports in ARG data logger (front end side)

Labels: GPS, SIM card slot, LED indicators for GSM comm, GSM, Power to AT/RH, USB slot, SD card, Ethernet port, Disabled ports, Battery power from Charge controller



Insertion of SIM card



Use of sealant to fill the gaps

# REPLACEMENT OF DATALOGGER

## PLACEMENT OF LOGGER INSIDE NEMA BOX

**BEFORE INSTALLATION**

**AFTER INSTALLATION**

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# ANTENNA

## ANTENNA INSTALLATION ON THE POLE

- Place the antenna in such a way that good signal reception is possible.
- Keep the antenna under the shadow of solar panel
- Seal the cable entry hole using silicon sealant to prevent entry of water and insects
- The antenna cables should be rolled considering its minimum bending radius
- Do not interchange GPS and GSM antenna cables, which are labeled as GPS and GSM
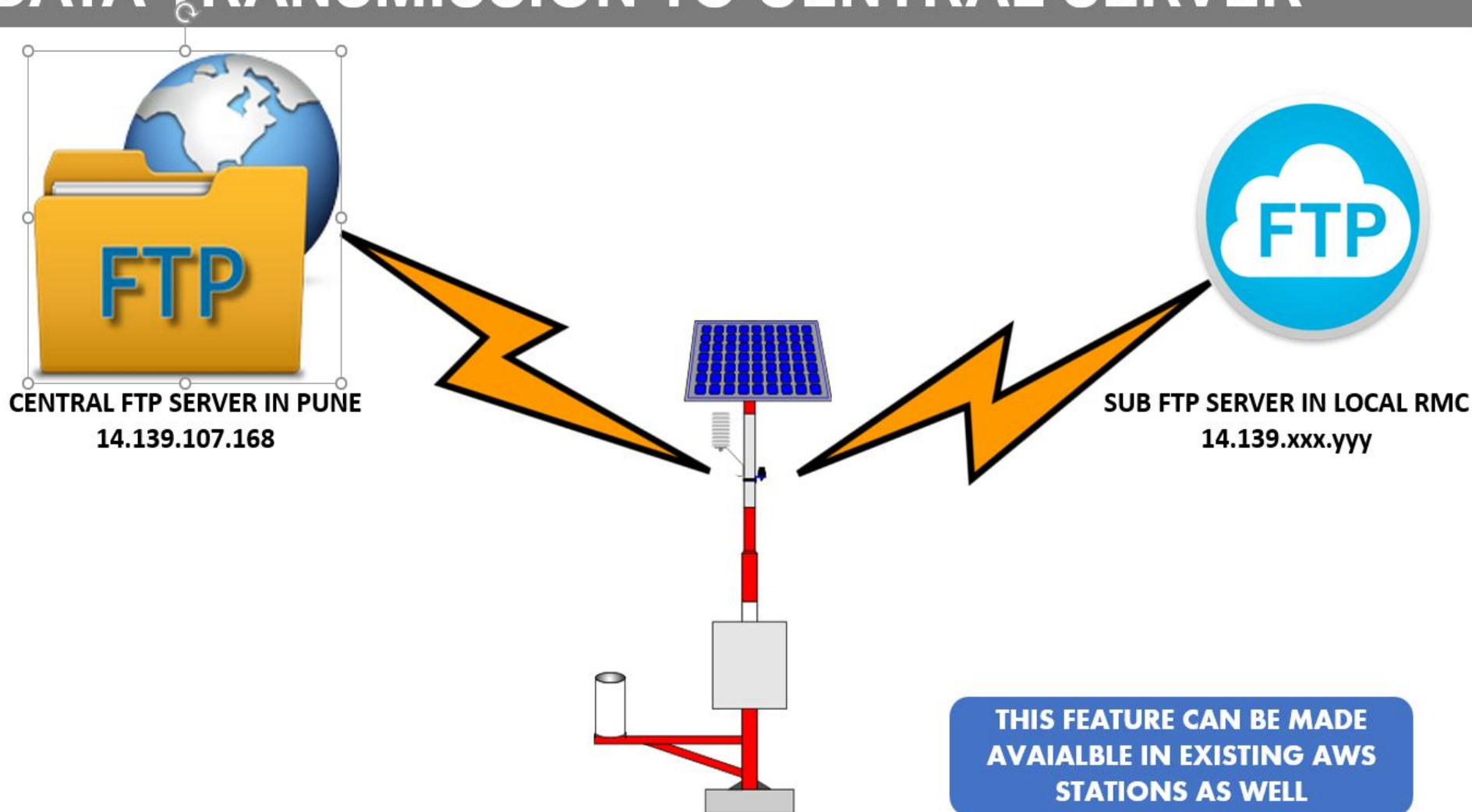
Cellular + GPS combo antenna

# DUAL COMMUNICATION

## DATA TRANSMISSION TO CENTRAL SERVER

CENTRAL FTP SERVER IN PUNE
14.139.107.168

SUB FTP SERVER IN LOCAL RMC
14.139.xxx.yyy

THIS FEATURE CAN BE MADE AVAIALBLE IN EXISTING AWS STATIONS AS WELL

# CONFIGURATION

## LOGGER CONFIGURATIONS AT SITE

**Station ID & Station name**

Configuration methods

1. Using keypad on the logger
2. By sending SMS command from an authorized cell phone
3. Using web browser connected over LAN

**Default FTP settings are as follows**

FTP 1 configured for main central server at Pune

FTP2 is kept blank, can be configured by any of the methods mentioned above

# TRANSMISSION

## DATA TRANSMISSION INTERVALS

**Default configurations**

Logging interval – 15 mins ( 4 measurements in an hour - 0000, 0015, 0030, 0045 )

FTP Upload interval – 15 mins ( 4 data in an hour - 0000, 0015, 0030, 0045 )

GPS Time sync interval – once in a day (0630 UTC)

Rain measurements: Continuous
Cumulative rain fall values will be reset to zero at 0300 UTC every day

Daily min temperature reported at 0300 UTC every day
(min value in the duration of 1200 ~ 0300 UTC)

Daily max temperature reported at 1200 UTC every day
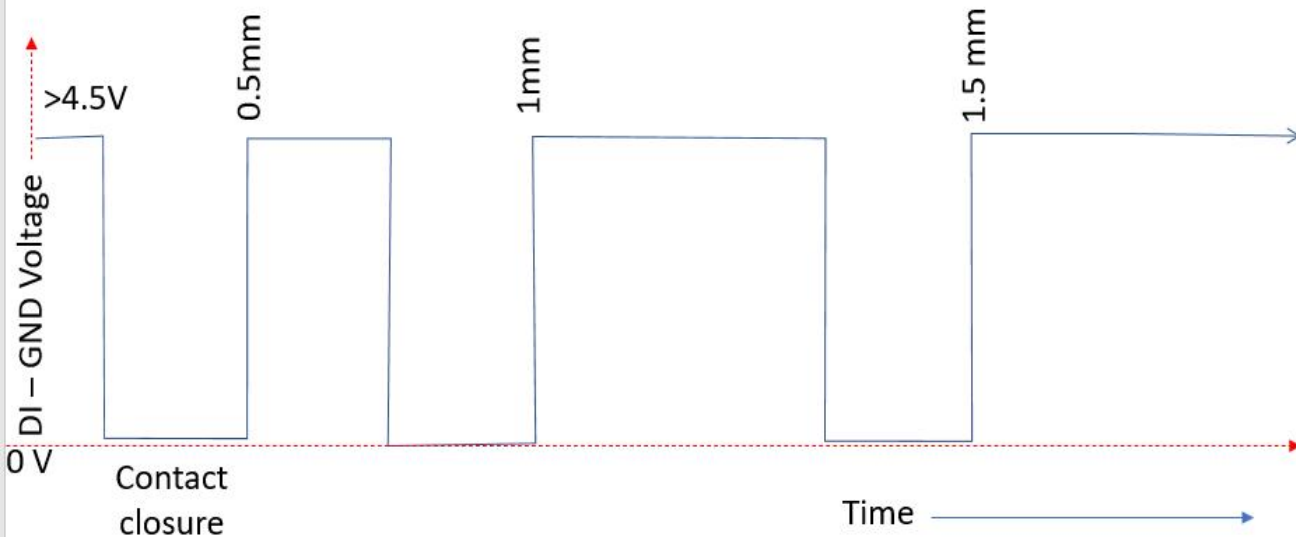(max value in the duration of 0300 ~ 1200 UTC)

# RAINFALL

Rain measurement is a continuous process, every tip is counted as 0.5mm rainfall.

When the signal D1 and GND comes in contact (short & open) 0.5mm will be added to previously recorded value.



Tipping Bucket Raingauge

# FTP SETTING

## 1.28 Data Reception:

The model CSL 8201 data logger (for both AWS and ARG) is capable transmitting data package in *.csv* format to two IP destinations defined and set in the logger. One destination is the ftp server at AWS lab, Pune and the other is the ftp server at respective MC or RMC.



Data transmission and reception
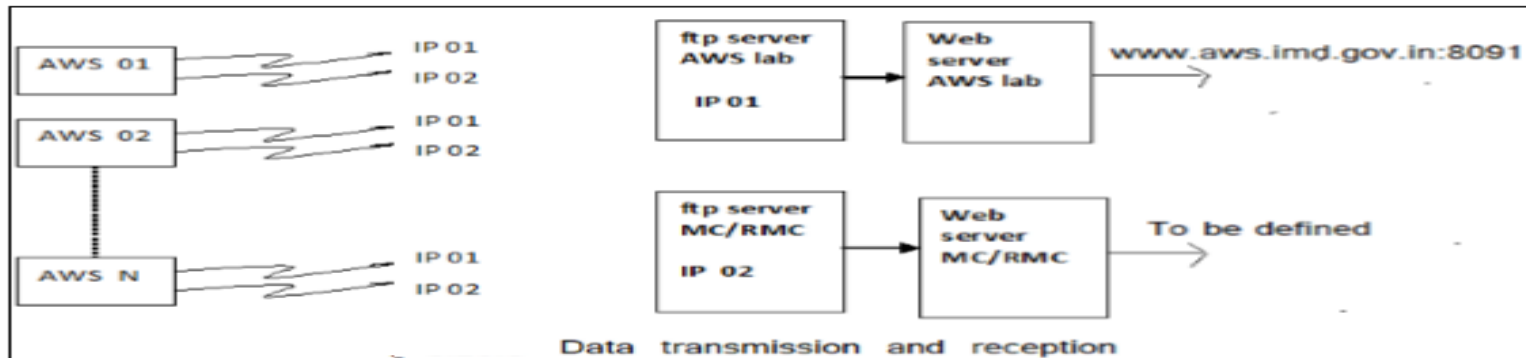
The two IP addresses can be set in the data logger using SMS commands as follows: Let 14.139.107.167 be the IP address of the AWS lab, Pune and 192.168.3.27 be the IP address of the MC/RMC server. Assume the data of CSL 8201 routed to a folder CELLCOMM with user name AWSNEW and Password 123456 on both the servers. Then the SMS command has to be sending like this:

1) To set IP-01:
   DLCMD(space)#ftp, 14.139.107.167,CELLCOMM,AWSNEW,123456

2) To set IP-02:
   DLCMD(space)#ftp2, 192.168.3.27,CELLCOMM,AWSNEW,123456

# Time setting

## Global settings – Date & Time

First line of the LCD display shows the current date and time. If it wrong, it is to be corrected by any of one method given below.

1. Via menu
Go to Menu > SYSTEM > OTHERS > Date and Time settings
2. Via Ethernet:
Login to configuration web page, Go to "Set Clock" and input current date and time and update or if gps is locked it can be directly updated from gps as shown.
3. Automatic time update from GPS
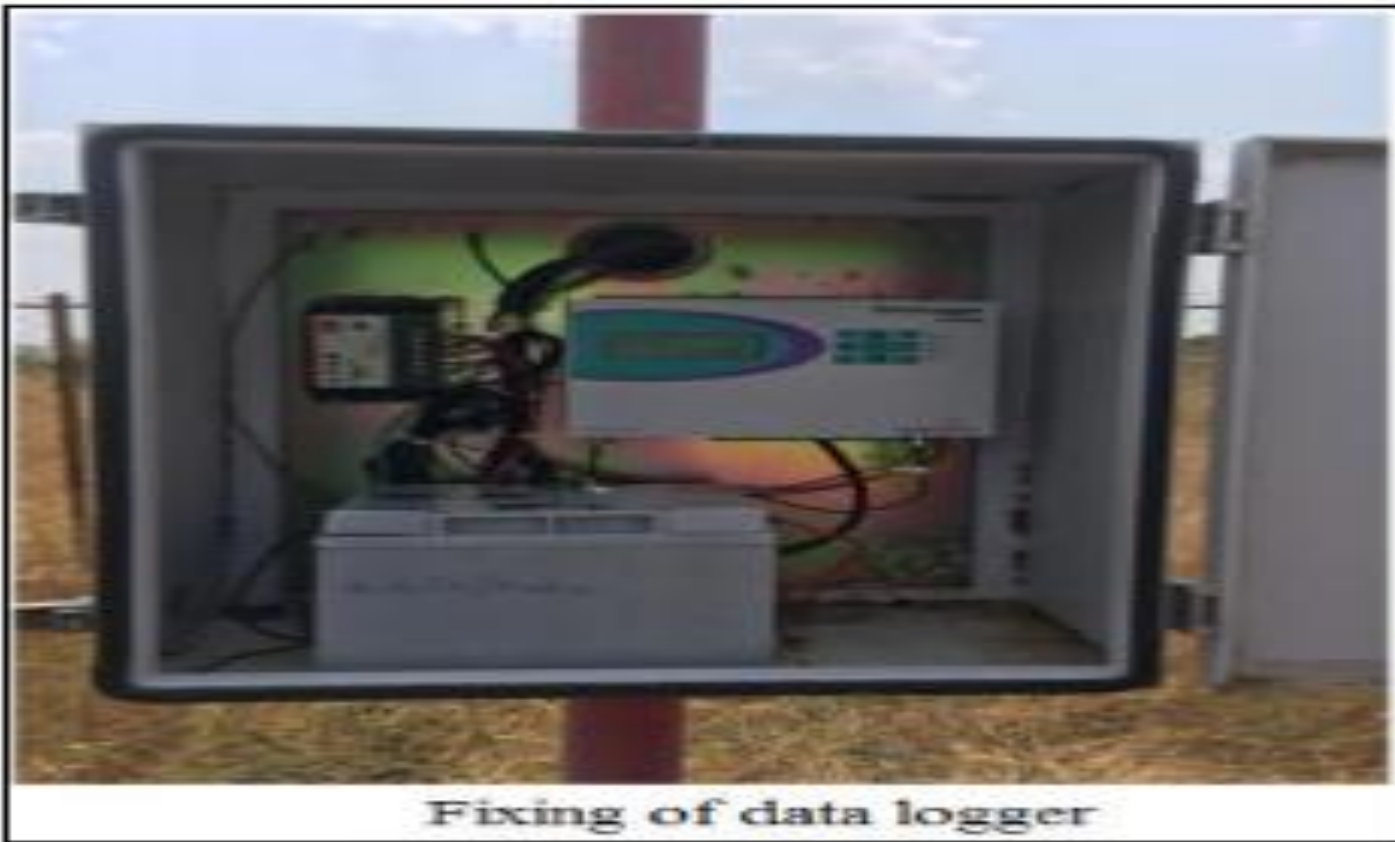   Go to Menu > SYSTEM > OTHERS > GPS settings > Set time zone, Set GPS time sync interval

# SD CARD

## SD CARD

SD card is used to store the data. Data storage interval and other settings can be done using menu interface or via web browser. During file writing (data logging) an LED indication will glow on the control panel.

Before inserting, directory for logging should be created in the SD card. Ensure memory size of the SD card and datalogging interval is optimum selected.

Note: Do note insert or retract the SD card when the datalogger is powered ON. It may damage the SD card or datalogger functionality.

Fixing of data logger

Thank you