



NAFFCO
A V I A T I O N



AWOS

AUTOMATED WEATHER OBSERVING SYSTEM

AWOS AUTOMATED WEATHER OBSERVING SYSTEM



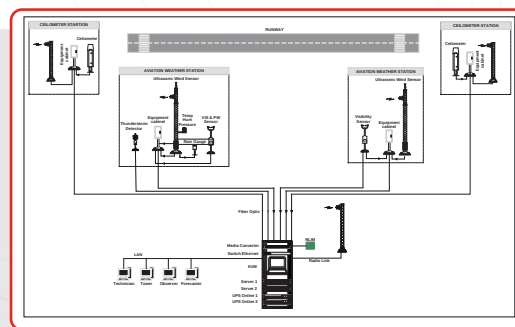
- Fulfilling all standards of ICAO and WMO.
- Fully automatic to enhance work efficiency.
- Customizable display interface according to user requirements.
- High reliability, safety, requiring minimal maintenance.
- Easy integration with other systems such as ATIS, D-atis, AFTN, AMHS, ...

INTRODUCTION

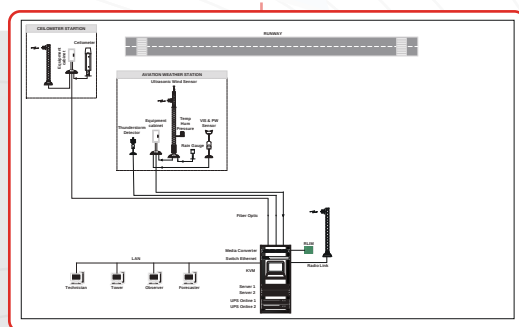
- **D-AW21**, developed by DICOM HME, is a advanced technology-based automatic weather monitoring system designed specifically for the aviation sector. The product has been granted "CERTIFICATE OF TECHNICAL SUITABILITY" by the "Civil Aviation Authority of Vietnam.
- **D-AW21** measures meteorological factors in the runway area, processes, stores, and visually displays data and meteorological messages such as METAR/SPECI, MET REPORT/SPECIAL.
- **D-AW21** operates stably, meeting the needs of various airports, from the simplest runways to those ranked according to ICAO standards. It can be upgraded and developed upon request.
- **D-AW21** is installed at both civilian and military airports, serving the takeoff and landing of aircraft.
- **D-AW21** assists air traffic controllers, pilot, and aviation meteorological staff in making crucial decisions during aircraft takeoff and landing by continuously providing real-time warnings about dangerous weather factors and phenomena affecting flight operations.

OVERALL SYSTEM DIAGRAM

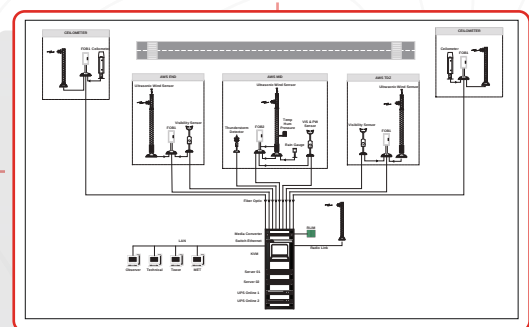
Overview diagram of the D-AW21 system with 3 stations



Overview diagram of the D-AW21 system with 2 stations



Overview diagram of the D-AW21 system with 1 station



Note: All images in this documents are included for reference purpose only. NAFFCO Aviation has the right to change specifications without prior notice.



DATA DISPLAY AND MESSAGE INTERFACE:



Display interface of the D-AW21 system with 3 stations



Display interface of the D-AW21 system with 2 stations



Display interface of the D-AW21 system with 1 stations

SENSORS

- Wind direction and speed.
- Visibility.
- Backlight.
- Intensity of runway landing lights (CHC).
- Current weather phenomena.
- Thunderstorm.
- Quantity and height of clouds.
- Air temperature.
- Atmospheric pressure.
- Rainfall.

MEASUREMENT DATA AND POST-PROCESSING DATA:

MEASUREMENT DATA	POST-PROCESSING DATA
Wind Direction and Speed	Average Wind Direction
	Wind Direction Changes
	Average Wind Speed
	Wind Speed MAX
	Wind Speed MIN
	Cross Wind
	Head Wind/Tail Wind
Visibility - Ambient Light Intensity of CHC Runway Lights	Average Visibility Average RVR Visibility
Current Weather	Current Weather
Thunderstorm	Thunderstorm
Cloud Amount and Ceiling Height	Average Air Temperature
Air Temperature	Average Air Temperature
Air Humidity	Average Air Humidity Average Dew Point Temperature
Air Pressure	Average QFE Humidity Average Dew Point Temperature
Rainfall	Accumulated Rainfall per Hour and Per Day

KEY FEATURES:

SYSTEM MONITORING

- monitoring the entire operation of the system: Server, Terminals, and transmission lines.
- Real-time notification and alerts to users in case of any abnormalities or incidents.
- Notification method: Dialog box and Sound.

DATA MONITORING FROM SENSORS

- monitoring the entire data collection process from sensor.
- Automatically notify and alert users in real-time when data collection is missing.
- Notification method: Dialog box and Sound.

USER MANAGEMENT AND SYSTEM CONFIGURATION

- Users must be granted permission to use the software's functions.
- Automatically notify and alert users in real-time when data collection is missing.
- Notification method: Dialog box and Sound.

DATA COLLECTION FROM SENSORS

- Continuously and completely collect data from sensors as required by users.

DATA PROCESSING AND STORAGE

- Process data according to the regulations of the international Civil Aviation Organization (ICAO), the world Meteorological Organization (WMO), and user requirements.
- Store data according to the requirements of ICAO , the Civil Aviation Authorization of Vietnam, and Users.
- Notification method: Dialog box and Sound.

MANUAL DATA ENTRY AND REMARK INFORMATION

- Manually enter values for meteorological factors when missing or incorrect.
- Manually enter remark information.

ADDITIONAL INFORMATION ENTRY, WINDSHEAR WARNING, AND TREND BULLETIN



- Enter supplementary information.
- Enter windshear warning information.
- Enter TREND forecast bulletins.

DISPLAY DATA AND BULLETINS

- Display full data as requested by ICAO and users.
- Display MET REPORT/SPECIAL and METAR SPECI bulletins.

DATA VIEWING

- View full current data.
- View full data over time.

STATISTICS

- Comprehensive statistics of all meteorological factors.
- Statistics for each meteorological factor over time

AUTOMATIC DATA DELETION

- Automatically delete file and data base data as required.

ALERTS

- Automatically alert when meteorological factor values exceed operational thresholds.

ADVANTAGES

FULLY AUTOMATIC, HIGHLY RELIABLE, SAFE, AND EFFICIENT

all processes from data collection from sensors, processing, calculation, storage, deletion, to data display are fully automated. The central data processing system utilizes two servers with hot standby mechanisms. additionally, power sources, storage devices, and data transmission lines are designed with redundancy, ensuring the system operates more reliably.

COMPLIANCE WITH ICAO, WMO STANDARDS, AND USER REQUIREMENTS

D-AW21 fully complies with all standards and recommendations of ICAO, WMO applied in the field of aviation meteorology regarding data calculation, processing, storage, and display. Moreover, D-AW21 can easily customize the display interface to meet user requirements.

USER-FRIENDLY GRAPHIC INTERFACE

The user interface of the D-AW21 system is designed to be intuitive, simple, and easily accessible for quick, accurate access to information, especially continuously changing information in adverse weather conditions. The system is optimized for air traffic controllers and other positions to ensure that necessary information is provided to users accurately, completely, and quickly.

Note: All images in this documents are included for reference purpose only.
NAFFCO Aviation has the right to change specifications without prior notice.

FLEXIBLE CUSTOMIZATION TO USER REQUIREMENTS:

D-AW2 allows users to customize many parameters related to data collection, processing, display, and alerting when the system encounters issues or when data exceeds thresholds affecting flight operations. Based on this, it fully and accurately meets user requirements.

INTERFACE SUPPORT FOR INPUT AND EDITING OF MISSING, INCORRECT DATA, RELATED INFORMATION, AND BULLETINS

Provides a user interface to support input of missing, incorrect data, related information, and bulletins such as wind direction, wind speed, visibility, weather phenomena, clouds, temperature, dew point, pressure, rainfall, supplementary information, and trend forecasts.

OPEN DESIGN, SUITABLE FOR CURRENT AND FUTURE DEVELOPMENT REQUIREMENTS

D-AW2 I is designed to be open, allowing deployment tailored to current specific requirements, and can be easily upgraded, expanded, and developed. The D-AW2 I system meets the requirements of normal airports with a single runway to large airports with multiple runways, from CAT I to CAT III standards. Sensor devices are designed to fit each runway and customer requirements.

EASY INTEGRATION WITH OTHER SYSTEMS

The MET REPORT /SPECIAL and METAR/SPECI bulletins of the D-AW2 I system are shared via TCP/IP and FTP. ATIS, D-ATIS, AFTN, AMHS, or other systems can easily communicate with the D-AW21 system through LAN to retrieve data as needed.

AUTOMATIC SYSTEM MONITORING

D-AW2 I maintains complete logs of system operations, user logins, and data updates. Additionally, D-AW2 I automatically checks all input data from sensors, post-processed data, and generates real-time notifications and alerts to users in case of any abnormalities.

AUTOMATIC ALERTING FOR DANGEROUS WEATHER PHENOMENA

Automatically alerts in real-time when threshold-exceeding meteorological factors and dangerous weather phenomena affecting flight operations occur.

LONG-TERM FULL DATA STORAGE

D-AW21 is designed to store full raw data from sensors, providing the basis for accurate analysis and assessment of the impacts of meteorological factors and weather phenomena on aviation incidents. Additionally, it stores fully processed data according to ICAO standards for an extended period to facilitate climate statistics and research.

REMOTE SYSTEM MONITORING

D-AW21 is designed to allow remote technical staff access to check the entire system and update information as needed.

COMPREHENSIVE AND TIME-INDEXED STATISTICS

Provides comprehensive statistics of all meteorological factor and statistics for each meteorological factor over time.

DESIGNED FOR CONTINUOUS, LONG-TERM OPERATION IN HARSH ENVIRONMENT CONDITIONS

D-AW21 is designed for continuous, long-term operation in harsh environmental conditions including temperature, humidity, tropical environments, especially in coastal and island environments.

ADVANTAGES



ULTRASONIC WIND SENSOR

The ultrasonic wind sensor utilizes ultrasonic wave technology to determine and calculate wind speed and wind direction. With ultrasonic technology, the accuracy of the sensor increases significantly compared to mechanical wind measurement devices, while also enhancing the product's durability. The ultrasonic wind sensor continuously transmits data to the central processing system for processing, providing users with information such as wind direction, wind speed, crosswind, headwind, and tailwind.



VISIBILITY AND WEATHER PHENOMENA SENSOR

The visibility and weather phenomena sensor are installed at the three weather stations along the runway, providing meteorological visibility (MOR) and current weather phenomenon data. By combining visibility sensors with background light sensors and runway light intensity communication devices, the central system automatically processes the data, providing runway visual range (RVR) values to users as soon as there are weather changes.



BACKGROUND LIGHT SENSOR

The background light sensor is designed to calculate the background light value in the runway area. Installed along the runway, the background light sensor is often deployed alongside visibility sensors to provide necessary data for calculating the runway visual range (RVR) value.



THUNDER SENSOR

The thunder sensor detects electrical impulses around the airport area to detect thunderstorms. The display interface provides information to determine the position of thunderstorms on a map in real-time. Additionally, thunderstorm information is used to display on the general interface of the AWOS system and to generate METRE PORT /SPECIAL, METAR/SPECI bulletins.



CLOUD MEASUREMENT SENSOR

The cloud measurement sensor, positioned at both ends of the runway, uses the Light Detection And Ranging (LiDAR) method to detect cloud layers along the approach path. This device allows for the detection of up to 5 cloud layers simultaneously, with altitudes of up to 25,000 feet.



AIR TEMPERATURE AND HUMIDITY SENSOR

The temperature and humidity sensor is integrated within a protective housing to shield it from direct sunlight and adverse weather conditions, ensuring accurate measurements. The temperature and humidity values are transmitted to the central processing system for processing, providing users with information about air temperature, dew point temperature, and humidity.



PRESSURE SENSOR

The electronic pressure sensor provides accurate atmospheric pressure values in the landing/takeoff area. Based on the measured pressure values and airport elevation, the system calculates QFE and QNH values to provide to users.



RAINFALL SENSOR

The rainfall sensor operates on the Tipping Bucket mechanism, offering high accuracy. Each time a certain amount of rainfall is accumulated, the sensor transmits information about the rainfall to the central processing system for further processing. Rainfall can be calculated based on user-defined intervals, meeting various requirements.



PRODUCTS AND SERVICES

PRODUCT

- Automatic weather observation system.
- Automatic weather observation system software.
- Datalogger.
- Various sensors.

SERVICES

- Repairing automatic weather observation systems at airports.
- Upgrading and expanding automatic weather observation systems at airports.

CONSULTING

- Consulting on building solutions for automatic weather observation systems tailored to specific conditions of each customer.

Note: All images in this documents are included for reference purpose only. Naffco Aviation has the right to change specifications without prior notice.



Serving Over 100 Countries Worldwide



800-NAFFCO
8 0 0 6 2 3 3 2 6

customerservice@naffco.com

✉ info@naffco.com | 🌐 www.naffcoaviation.com

follow us on



Technology partner:

DiCOM

Member of:



**AIRPORTS COUNCIL
INTERNATIONAL**