

MESOTECH



I N T E R N A T I O N A L



AIRPORT WEATHER ADVISOR®

ICAO Compliant System Design

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Your Weather, Our Expertise. Let's Connect!



AIRPORT WEATHER ADVISOR™

The Airport Weather Advisor® ICAO Type-Certified System meets the requirements of Annex 3 to the Convention on International Civil Aviation (ICAO) for automated meteorological observing systems. This comprehensive system provides accurate, reliable weather data essential for international aviation operations.

The system is designed to support international airports with Category I, II, and III instrument approach and landing operations, providing real-time meteorological parameters affecting landing and take-off operations in compliance with ICAO standards.

ABOUT MESOTECH

Based in Sacramento, California, Mesotech originally supplied small meteorological stations to various industries. With over 30 years of experience, we have established a global client base, including hundreds of airports worldwide. Despite our success, we still prioritize personal attention and customer service, which is the foundation of our reputation.

Our weather systems have been installed globally, and have been in continuous use by the US Air Force since 2001. As a prime contractor, we provide engineering, helpdesk, and logistics support for 220+ USAF/Army systems worldwide and were recognized as the Region IX Small Business Prime Contractor of the Year in 2014. **Leveraging our extensive expertise from military operations, we are proud to offer high-caliber weather systems to any airport.**

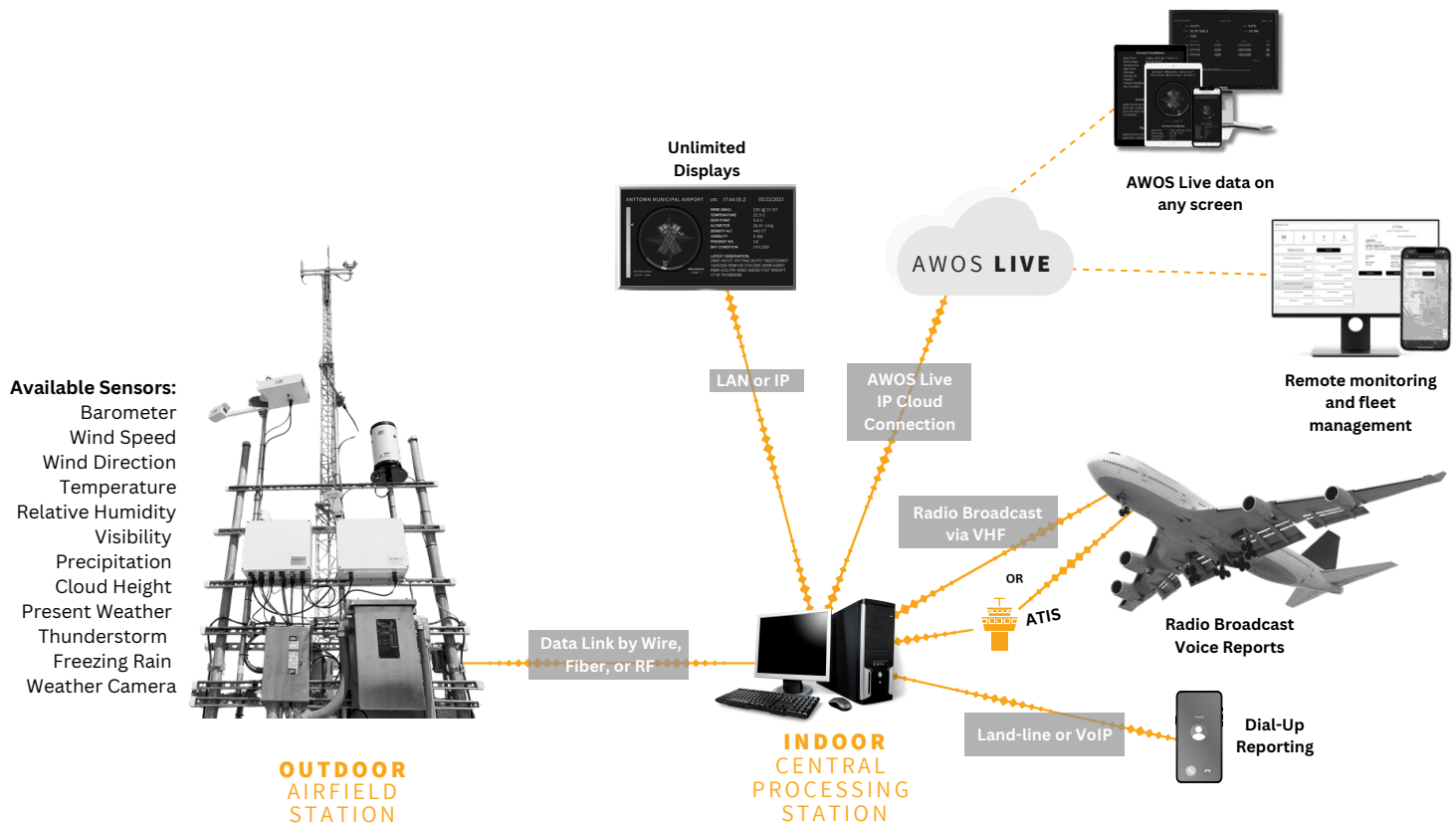


It's the personal touch that matters and that's where we here at Mesotech outshine all the rest. Customer service matters to us and we deliver in a way that the larger companies can only dream of. Our help desk is fully staffed by engineers and technicians who provide daily support. When you call us, we answer, we listen, and we act fast producing solutions quickly and efficiently.



SYSTEM OVERVIEW

AWA™ Automated Weather Observing Systems provide airports with a robust, end-to-end solution for continuous weather monitoring, integrating advanced meteorological sensors, centralized data processing, and a secure cloud platform to deliver real-time, ICAO-compliant weather observations and diagnostics.



Outdoor Airfield Station:

Equipped with meteorological sensors, the airfield station collects and verifies data quality before transmitting sensor readings and diagnostic information. Sensor suite is customizable to meet airport needs.

Indoor Central Processing Station:

This station processes sensor data into accurate weather observation reports, archives the information, and serves as a hub for user interaction and data dissemination.

Secure Cloud Platform -

AWOS Live: Designed for 24/7 remote monitoring, AWOS Live enables pilots to access real-time access to weather data and system diagnostics.

Airport Weather Advisor® AWOS Live **Weather Camera**

Real-Time Weather, Visual, & Remote Insights at Your Fingertips



The Mesotech Central Processing Station (CPS) is a secure computer system with an easy to use interface to support Airport Weather Advisor®.

Key Features

Communication

The CPS communicates with the Data Collection Platform (DCP) using one of many communication options including UHF data radio, optical fiber, and twisted pair copper.

Fully Compliant

The CPS processes data and distributes METAR reports in real-time, fully compliant with ICAO Annex 3 requirements. The system meets or exceeds all requirements for data processing and interfaces.

Customizable Screens

All workstations feature customizable user screens and real-time data display with intelligent report editing and augmentation capabilities.

Highlights

- ICAO compliant for international aviation weather systems
- Supports voice reports for up to 4 telephone lines plus VHF transmission
- Standard tower computer form-factor with display for operator interface
- Built-in syntax certification supports intelligent supplemental editing
- Automated reporting in accordance with ICAO Annex 3 requirements
- Multiple communication options for maximum flexibility

Fully Automated Reporting

The easy to use interface allows for editing and augmentation of fully automated METAR reports when necessary by a report editor. The CPS distributes reports through multiple data formats including voice reports by ground-to-air radio (VHF) and telephone. The CPS performs built-in automatic self-testing of electronic components and data quality.

Technical Specifications

Operating System:	Latest Microsoft Windows O/S
Security:	Passwords with user management
Compliance:	Component of Mesotech's ICAO type-certified AWOS
Voice Outputs:	Up to 4 telephone lines, VHF transmitter
Automated reporting:	In accordance with ICAO Annex 3 requirements
Report Editing:	Built-in syntax certification supports intelligent supplemental editing
Work Stations:	Unlimited
Dimensions:	Tower Server: 178 x 356 x 432 mm, UPS: 102 x 254 x 381 mm, Monitor: 406 x 508 x 178 mm
Radios:	UHF Radio: 76 x 25 x 127 mm, VHF Radio: 152 x 51 x 203 mm



Data Collection Platform AWOS COMPONENT

AWA KIT, DCP PRO WITH MOUNTING HARDWARE P/N 2025021

Mesotech's Airport Weather Advisor® Data Collection Platform is the 'in the field' brains of the Airport Weather Advisor® system.

Core Capabilities

Data Collection

Mesotech DCPs connect directly to analog and digital sensors without external interface components or special programming. Sensor data is evaluated prior to being packaged and sent to the CPS.

Harsh Environment Reliability

Each Mesotech DCP is a completely self-contained data collector and processor for all types of weather stations. Designed for exposed and severe outdoor weather conditions.

Data Viewing and Distribution

Sensor status and data can be viewed locally via a laptop using the service port. The USB service port allows any laptop with a terminal emulator to serve as a maintenance tool.

Highlights

- ICAO compliant for use in international aviation AWOS
- Compact and easy to install
- Sensors connect quickly with MIL-STD connectors
- Flexible and highly reliable
- Supports most aviation weather sensors on the market
- Broad range of communication options including UHF data radio
- Easy to use menu-driven software
- Built-in automatic self-testing

Software Interfacing

Our DCPs work seamlessly with our Airport Weather Advisor® Central Processing Station to provide the user with accurate sensor data, sensor status, and maintenance capabilities. The DCP and attached sensors can be serviced through the DCP's USB service port or remotely via AWA.

Technical Specifications

Dimensions:	381 × 406 × 203 mm
Mounting Hole Spacing:	229 × 340 mm (C-C)
Mounting Options:	C-Channel
Weight:	13.6 kg
Supply Voltage:	120VAC or 12VDC
Power:	<10W (without sensors)
Operating Temp:	-55°C to +70°C
Connectivity:	UHF Data Radio, Ethernet, Twisted pair copper, Optical Fiber
Maintenance port:	USB
Enclosure rating:	NEMA 4X

Mesotech's CBME120 ceilometer detects cloud height using an eye-safe laser. It uses the Light Detection and Ranging (LIDAR) principle with a low power diode laser.

Advanced Capabilities

Multiple Cloud Layer Detection

The ceilometer employs unique digital signal processing techniques that enable detection of up to five cloud layers simultaneously. This design also extends the life of the laser beyond 10 years.

Built-in Diagnostics

The ceilometer has built-in test equipment for automatically adjusting its operating parameters and for self-diagnostics. The cyclic self-testing completely covers the ceilometer's operation.

No Calibration Required

It does not require periodic calibrations or adjustments. The ceilometer has been tested to IEC environmental standards for vibration, shock, impulse voltages, transients and operating temperature



Advanced LIDAR Technology

This highly reliable and accurate ceilometer has a detection range up to 40,000 feet (12,000 m). The main advantages of this ceilometer are its size, weight, power requirement, and modern design which makes for easy installation and integration. The small size and weight facilitates easy, one-person maintenance.

The ceilometer can be carried in one hand and can operate from 12 VDC or AC mains power. The ceilometer's modern electronic design includes only two replaceable subassemblies and allows complete field replacement without adjustments or calibration.

Highlights

- LIDAR principle with eye-safe laser technology
- Detection range up to 40,000 feet (12,000 m)
- Detects up to five cloud layers simultaneously
- One-person maintenance capability
- Complete field replacement without adjustments
- Laser life beyond 10 years
- Built-in test equipment and self-diagnostics
- No periodic calibration required
- IEC environmental standards tested

Technical Specifications

Measurement Range	0 to 12,000 m
Accuracy	5m or $\pm 0.25\%$
Cloud Layer Detection	Up to 5 layers
Laser type	Low power diode laser (eye-safe)
Operating temperature	-40°C to +55°C
Power Supply	Available in 110V or 230 AC versions
Interfaces	RS-232, RS-485, FSK modem, other on request
IP Rating	IP66 (optional)
Compliance	FAA, WMO, ICAO, CAP437 compliant
Weight	15 kg

Digital barometer is a highly accurate pressure transducer with a digital output signal. This instrument measures atmospheric pressure to within $\pm 0.03\%$ FS.

Outstanding Performance

The barometer offers outstanding value in real-world conditions that demand accurate and stable barometric measurements. It uses proven silicon sensor technology with microprocessor-based signal compensation, eliminating the need to insulate or temperature-regulate the barometer.

The sensor can operate from unregulated supply voltage in the range of 6 to 26 volts without affecting performance. Current consumption is 17 to 30 mA in measurement mode.

Advanced Capabilities

Remote Operation Optimized

For operation in remote locations under battery power, the sensor has instant warm-up and turn-on to full rated accuracy. This allows sampled operation at low average power consumption.

Silicon Sensor Technology

Uses proven silicon sensor technology with microprocessor-based signal compensation for maximum accuracy and stability over the entire operating range.

No Temperature Regulation

Advanced compensation eliminates the need to insulate or temperature-regulate the barometer, simplifying installation and reducing power consumption.

Wide Voltage Range

Operates from unregulated supply voltage in the range of 6 to 26 volts without affecting performance, providing installation flexibility.

Highlights

- ICAO compliant accuracy: $\pm 0.03\%$ FS max (0.3 hPa)
- Instant warm-up to full accuracy for remote operation
- Low power consumption: 17-30 mA in measurement mode
- Wide operating temperature range: -40°C to $+85^{\circ}\text{C}$
- Digital RS-232 output for direct computer interface
- Excellent long-term stability: 0.02% FS max per year



Technical Specifications

Pressure Range	500 to 1100 mbar
Accuracy	$\pm 0.03\%$ FS max (0.3 hPa)
Stability	0.02% FS max per year
Output	RS-232
Operating temperature	-40°C to $+85^{\circ}\text{C}$
Storage temperature	-55°C to $+90^{\circ}\text{C}$
Pressure Fitting	Brass barbed fitting for $\frac{1}{8}$ inch ID tubing
Supply Voltage	5.5 to 30 VDC
Dimensions	4.6 × 5.6 × 2.5 cm
Weight	0.14 kg

Air Temperature/Relative Humidity Probe

AWA KIT, TEMP/RH SENSOR P/N 29000122

Air Temperature and Humidity Probe can be used in a wide variety of environments and is excellent for use in automatic meteorological stations.

Highlights

- Most accurate and reliable transducers available
- Up to 100% RH measurement capability
- Negligible hysteresis and excellent long-term stability
- Insensitive to dust with good chemical tolerance
- 100% interchangeable probe head design
- EMI/RFI protection for reliable operation
- Quick field replacement capability



Key Advantages

100% Interchangeability

100 percent interchangeability reduces user maintenance costs and practically eliminates downtime. If repairs are needed, the probe head can be quickly removed and replaced.

Easy Interface

Interfaces easily with data loggers and recorders, is simple to service, and features EMI/RFI protection for reliable operation in electrically noisy environments.

NEMA4 Protection

The combined performance of the probe and NEMA4 protected housing enables accurate and repeatable temperature and humidity measurements in harsh environments.

Digital Processing

Advanced microprocessor and ASIC technology with digital processing allows accurate linearization and temperature compensation over the entire operating range.

Advanced Transducer Technology

With one of the most accurate and reliable transducers available, the probe provides up to 100 percent RH measurement with high accuracy. It has negligible hysteresis and excellent long-term stability, even in extremely high humidity. The probe is also insensitive to dust and has a good tolerance to chemicals.

This probe combines advanced microprocessor and Application Specific Integrated Circuit (ASIC) technology with a robust plug-in design. The digital processing allows accurate linearization and temperature compensation over the entire operating range.

Technical Specifications

Environment Humidity:	0 to 100% RH
Environment Temperature:	-50°C to +100°C (-58°F to +212°F)
Humidity Accuracy:	±0.8% RH at 23°C and 10, 35, 80% RH
Temperature Accuracy:	±0.1°K at 23°C and 10, 35, 80% RH
Digital Interface:	RS-232
Operating Temp:	-40°C to +60°C (-40°F to +140°F)
Power:	12VDC, 1W
Housing:	ABS plastic. NEMA4 (IP65)
Dimensions:	Ø15 x 108 mm
Weight:	17g

Motor Aspirated Radiation Shield

AWA KIT, TEMP/RH SENSOR P/N 29000122

Motor Aspirated Radiation Shield (MARS) provides forced aspiration of a temperature sensor to increase its measurement accuracy in an outdoor environment.

Highlights

- Reduces radiation errors to less than 0.2°C RMS at 1000 W/m²
- Triple-walled intake tube design with multiple canopy shades
- Continuous duty blower rated for 80,000+ hours operation
- Accommodates various sensor types up to 24mm diameter
- UV-stable plastic construction with stainless steel hardware
- Flow rate 5-11 m/s at sensor depending on sensor size
- Brushless electronic commutation for maximum reliability



Design Features

Sensor Compatibility

Temperature sensors can be RTD, thermocouples, or thermistor types with sheath diameters up to 10 mm (0.4 inches) and 150 mm (6.0 inches) in length. Can also accommodate other sensor types up to 24 mm in diameter.

Compact Design Benefits

The small shield size reduces the surface area exposed to incoming radiation during the day, significantly reducing the amount of heat that needs to be washed away from the intake tubes.

Continuous Duty Blower

The versatile DC blower is designed for continuous duty of more than 80,000 hours (9 years) at 25°C (77°F). Flow rate at the sensor is 5 to 11 m/s, depending upon the sensor size.

Solid-State Reliability

Brushless electronic commutation with the blower is achieved using dependable solid-state circuitry. Universal mounting brackets use tough UV-stable plastic and corrosion resistant stainless-steel hardware.

Exceptional Performance

Unique in its small size and exceptional performance, this MARS reduces radiation errors to less than 0.2°C RMS with the shield exposed to solar radiation of 1000 W/m². The shield employs a triple-walled intake tube and multiple canopy shades to isolate the sensor from precipitation and solar radiation. A continuous duty blower draws ambient air through intake tubes and across the sensor, minimizing radiation errors. The temperature sensor mounts vertically in the center of the intake tubes. The blower housing and shield assembly are made from reflective white UV-stable plastic.

Technical Specifications

Sensor Types:	Temperature and humidity sensors up to 24 mm (.94 inches) in diameter
Power Consumption:	12-14 VDC @ 500 mA
Radiation Error:	Ambient Temperature 0.2°C (0.4°F) RMS at 1000 W/m ² intensity
Material:	UV stabilized white thermoplastic shield and blower housing. Aluminum mounting bracket, white coated. Stainless steel U-bolt clamp.
Dimensions:	33 x 20 cm
Weight:	1.1 kg

The FT742 is FT Technologies' newest and most accurate ultrasonic wind sensor from the FT7 Series – the world's toughest wind sensors. Capable of measuring wind speeds up to 75 m/s, it features no moving parts and patented Acu-Res® technology for maximum reliability.

Highlights

- Wind speed measurement 0 to 75 m/s
- No moving parts – fully solid-state ultrasonic technology
- Patented Acu-Res® Technology – 40dB stronger signal
- Hard-anodised aluminium, corrosion class C5M
- Thermostatically-controlled heating, operates to -40°C
- Sealed to IPX6K, IP66, and IP67 standards
- MIL-STD-810G rated for anti-icing
- No re-calibration required



Key Technologies

Acu-Res® Technology – Patented Acoustic Resonance

FT Technologies' patented Acu-Res® Technology provides a signal 40dB stronger than conventional ultrasonics. The system automatically compensates for variations in temperature, pressure and humidity, continuously monitoring data quality, checking sub-system health, and dynamically controlling heater power to maintain ice-free operation.

Extreme Environment Operation

Thermostatically-controlled heating provides ice-free operation to -40°C. Resistant to corrosion, sand, hail, solar radiation, and bird strikes. MIL-STD-810G rated.

Compact & Maintenance-Free

Extremely small and lightweight design with no moving parts. Users typically experience over 99.9% data availability even in the harshest conditions.

Aviation-Grade Quality

Over 30 environmental tests completed. Individually calibrated in FT Technologies' wind tunnel. Calibration results traceable by serial number.

Technical Specifications

Wind Speed Range:	0 to 75 m/s
Wind Speed Accuracy:	±0.3m/s (0-16 m/s) ±2% (16-40 m/s) ±4% (40-75 m/s)
Wind Direction Range	0 to 360°
Wind Direction Accuracy:	4° RMS
Operating Temperature:	-40° to +85°C
Operating Humidity:	0-100%
Ingress Protection:	IP66, IP67 and IPX6K
Interface:	RS-485 (half-duplex)
Dimensions:	Sensor height: 161 mm Sensor width: 56 mm
Weight:	380 g

The Mesotech Tipping Bucket Rain Gauge is a dependable instrument used for measuring precipitation. The gauge also measures snowfall and is equipped with a 400-watt electric heater.

Highlights

- Dependable 8-inch funnel collector design
- 400-watt electric heater for snow measurement
- Magnetic reed switch activation
- Anodized and powder-coated aluminum construction
- Built-in bubble level for proper positioning
- Debris screen to prevent funnel blockage
- Mounting brackets with leveling adjustments included

Design Features

Easy Installation

Mounting brackets with leveling adjustments are included. The bubble level on the base ensures correct positioning for accurate measurements.

Construction Quality

The standard gauge is made of anodized and powder coated aluminum. A bubble level is located on the base for correct positioning. The funnel has a screen to prevent debris from entering the gauge.

Snow Measurement

The rain gauge includes an electric heater for measurements of snow and rain. The heating components include a 400-watt heater installed in the base, insulation in the outer tube.

Temperature Control

A freeze-point thermostat control at the funnel ensures optimal operation. Snow falling into the funnel is melted and the resulting water drains into the tipping bucket assembly.

Reliable Precipitation Measurement

Rainfall entering the 8-inch funnel collector is directed to the tipping bucket assembly. When an incremental amount of precipitation has been collected, the bucket assembly tips and activates a magnetic reed switch. The sample is discharged through the base of the gauge.

A momentary electrical contact closure actuates for each increment of rainfall. This contact closure can be used to operate an event recorder or other data acquisition system. The standard gauge is made of anodized and powder coated aluminum.



Technical Specifications

Capacity:	Unlimited
Orifice:	8 inches
Calibration:	0.01 inches
Accuracy:	±1% for 1 to 3 inches per hour, ±3% for 0 to 6 inches per hour
Accuracy Calibrated Rate:	±1% at 2.3 inches/hour, ±1% at 5.1 inches/hour
Operating Temp:	-55°C to +55°C
Heater Power:	115 VAC 50/60 Hz @400 watts
Dimensions:	8 x 17 inches
Weight:	12 lbs
Contact Maximum Rating:	3 watts, 0.25 amps, 24 VDC (27 V surge suppressor)
Mounting:	3 legs, ¼ inches diameter bolt holes on 9½ inches
Output:	0.1 second switch closure

The CS125 is an infrared forward-scatter visibility and present weather sensor for stand-alone use or with automatic weather stations including those for road, marine, and airport applications. It uses a 42° scatter angle for accurate Meteorological Observable Range (M.O.R.) estimation.

Highlights

- Infrared forward-scatter, 42° scatter angle for MOR accuracy
- Maximum reported visibility: 75 km (100 km extended)
- Identifies fog, drizzle, freezing rain, snow, hail and more
- 56 SYNOP present weather codes + METAR/NWS codes
- Downward-pointing optics — reduces contamination/snow blockage
- Continuous high-speed sampling for mixed-weather accuracy
- Automatic dew prevention and anti-icing heaters
- Self-monitoring — reports internal faults and lens contamination
- ICAO Annex 3, FAA and UK CAA compliant
- IP66 sealed enclosure



Key Technologies

Advanced Forward Scatter Technology

The CS125 uses the well-established forward scatter system for visibility measurement, identifying precipitation particles from their scattering properties and fall speeds combined with temperature measurement to identify weather type. Downward-pointing optics reduce contamination and blockage with snow and the sensor has high immunity to interference from warning lights near runways.

Present Weather Detection

Identifies mist, fog, drizzle, freezing drizzle, rain, freezing rain, rain and snow, snow and more. 56 SYNOP present weather codes.

Automatic Heater Control

Incorporates low-power dew prevention heaters and higher-power anti-icing heaters for the hoods as standard. Automatically controlled to ensure all-weather operation.

Aviation Compliance

Complies with ICAO 9837, ICAO Annex 3, CAP437, CAP670, and CAP746. Certified for airport and road weather stations.

Technical Specifications

Maximum Reported Visibility	100 km
Mimum Reported Visibility	5 m
Accuracy	<600 m: ±8%; 600-10,000 m: ±10%; 10,000-15,000 m: ±15%; >15,000 m: ±20%
Resolution	1 m
Measurement Principle	Infrared forward scatter, 42° scatter angle
Operating Temperature	-25 to +60°C (-40 to +70°C extended)
Operating Humidity	0 to 100%
Sensor Sealing	IP66
Power	7-30 Vdc
Dimensions	540 × 640 × 246 mm (approx.)

MESOTECH ALS-2

AMBIENT LIGHT SENSOR

INTERNATIONAL

The ALS-2 Ambient Light Sensor is precision instrument designed specifically for aviation applications, particularly for Runway Visual Range (RVR) calculations.

Aviation-Optimized Design

The ALS-2 is typically used in airport applications where Runway Visual Range (RVR) must be calculated. The sensor interfaces directly with SWS-200 visibility sensors, with the ambient light sensor data appended to the standard sensor data message, simplifying both installation and data processing. This integration approach reduces system complexity while ensuring that both METAR and RVR information requirements are met. The sensor is optimized for the specific lighting conditions encountered at airports, including various runway lighting systems and natural ambient conditions.

Highlights

- Precision ambient light measurement for aviation applications
- Direct interface with SWS-200 visibility sensors
- Simplified installation and data integration
- Optimized for airport lighting environments
- Supports METAR and RVR calculations
- Weather-resistant construction for outdoor use
- Low maintenance design



Integration Features

Direct SWS-200 Connection

The sensor may be configured to allow direct connection of the ALS-2 Ambient Light Sensor to SWS-200 present weather sensors, eliminating the need for separate data acquisition systems.

METAR and RVR Support

Provides essential ambient light data required for accurate Runway Visual Range calculations, supporting both METAR reporting requirements and operational runway visibility assessments.

Simplified Installation

Direct connection capability reduces installation complexity and cabling requirements while maintaining full functionality for both visibility and ambient light measurements.

Airport Lighting Optimized

Specifically calibrated and optimized for airport lighting conditions, including high-intensity runway lights, approach lighting systems, and natural ambient lighting variations.

Technical Specifications

Application:	Runway Visual Range (RVR) calculations
Measurement Range:	Aviation optimized for airport lighting conditions
Interface:	Direct connection to SWS-200 sensors
Output Integration:	Data appended to SWS-200 data message
Installation:	Simplified with SWS-200 integration
Calibration:	Factory calibrated for aviation use
Construction:	Weather-resistant for outdoor installation
Maintenance:	Low maintenance design
Compliance:	ICAO standards compliant

The BTD-200 lightning warning system is a complete detection and warning system which has been developed from the Biral range of professional aviation grade lightning detection systems.

Unique Lightning Detection Technology

When a lightning discharge occurs there is a significant transfer of electric charge which causes a disturbance in the atmospheric electric field detectable to a distance of more than a hundred kilometres. The low frequency (<50 Hz) disturbance is detected by the BTD-200 antenna and the signal is processed to determine range and type.

Most importantly, the BTD-200 is able to issue warning of potential overhead lightning before the first strike. Such early warning is not possible using radio based detection systems. The BTD-200 filters out higher frequency electromagnetic radio waves which confuse other sensors and cause them to false alarm.

Highlights

- Complete, out-of-the-box warning system with minimal installation
- Detects cloud-to-ground, intra-cloud and cloud-to-cloud lightning
- 35km (22 miles) detection range with 1km resolution
- Advanced warning before first lightning strike
- False alarm rate <2%
- Lightning Works server software included
- Compliance with EN50536:2011+A1:2012 for Class 1 detector
- Performs in accordance with IEC 62793 for Class A detector



Advanced Detection Capabilities

Complete Detection Coverage

Its proven detection technology reliably detects the presence of all forms of lightning out to a range of 35km (22 miles) from the sensor, including cloud-to-ground, intra-cloud, and cloud-to-cloud lightning discharges.

Early Warning Capability

Detects charged precipitation and strong electric fields, providing advance warning of overhead lightning risk even before the first lightning strike occurs, giving personnel critical time to take protective action.

Professional Grade Reliability

Designed to be quickly and easily installed, it comes complete with a universal mains voltage power supply and the essential PC server application Lightning Works for monitoring, warning and data logging.

Low False Alarm Rate

As virtually no manmade or natural source can disturb the Earth's electric field in same way as a lightning discharge, the BTD-200 has an almost zero false alarm rate (<2%).

MESOTECH



BTD-200

LIGHTNING DETECTION SENSOR

I N T E R N A T I O N A L

Technical Specifications	
Lightning Detection:	Cloud-to-cloud, cloud-to-ground and intra-cloud lightning discharges
Thunderstorm Activity Detection:	Charged precipitation and strong electric field
Lightning Detection Range:	35km (22 miles)
Range Resolution:	1km
Detection Efficiency:	95% for single flash, 99% for storm with 2 flashes, 99.9% for storm with 3 flashes
False Alarm Rate:	<2%
Maximum Flash Rate:	120 per minute
Maximum Update Rate:	2 seconds
Power Requirements:	9 to 30Vdc, universal mains power adaptor included
Power Consumption:	Less than 5W
Operating Temperature:	-20°C to +50°C
Protection Rating:	IP66
Material:	Stainless steel and epoxy powder paint coated aluminium
Dimensions:	Height: 675mm (26.6"), Diameter: 200mm (7.9")
Weight:	4.3kg (9.5lbs) sensor only
Warranty:	1 year



Optional Components & Multi-Manufacturer Support

Mesotech systems are designed with flexibility in mind, allowing integration with different manufacturers' sensors to meet specific customer requirements. Our ICAO-Certified system can incorporate various optional components to provide comprehensive weather monitoring capabilities tailored to each airport's unique needs.

System Integration & Customization

Our experienced engineering team works closely with customers to integrate sensors from different manufacturers, ensuring seamless operation within the ICAO Type-Certified Airport Weather Advisor® framework. This flexibility allows airports to select the optimal combination of sensors for their specific climate, operational requirements, and budget constraints while maintaining full ICAO compliance.

The modular design of the Airport Weather Advisor® system enables easy integration of various sensor technologies, from basic meteorological parameters to advanced specialized sensors. Each installation is custom-configured to meet the unique requirements of the airport while ensuring full compatibility with international aviation standards.



Enhanced lightning detection system offering expanded range and advanced features for customers requiring upgraded lightning detection capabilities beyond the standard BTD-200 system.



Advanced Lightning Detection Technology

The BTD-300 represents the next generation in lightning detection technology, building upon the proven foundation of the BTD-200 with enhanced processing algorithms and expanded detection capabilities. This system is designed for high-end installations where maximum detection performance is required.

Compatible with Mesotech Airport Weather Advisor® systems, the BTD-300 integrates seamlessly with existing ICAO Type-Certified infrastructure while providing enhanced lightning detection and warning capabilities for demanding applications.

Highlights

- Enhanced detection algorithms for improved performance
- Extended operational range capability
- Advanced false alarm reduction technology
- Professional-grade reliability for critical applications
- Full compatibility with AWA® systems
- Suitable for high-end aviation installations

Enhanced Capabilities

Extended Detection Range

Advanced signal processing and antenna design provide extended operational range beyond standard systems, offering earlier warning capabilities for approaching thunderstorm activity.

Professional Grade Reliability

Designed for the most demanding applications, the BTD-300 provides professional-grade reliability and performance for critical aviation installations.

Enhanced Processing Algorithms

Sophisticated digital signal processing algorithms provide improved discrimination between lightning strikes and other electromagnetic interference sources, reducing false alarms.

System Integration

Full compatibility with Mesotech Airport Weather Advisor® systems ensures seamless integration with existing ICAO Type-Certified infrastructure and reporting systems.

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INTERNATIONAL

BTD-300

LIGHTNING DETECTION SENSOR

Technical Specifications	
Detection Range:	Enhanced range capability
Detection Technology:	Advanced processing algorithms
System Integration:	Compatible with AWA® systems
Application:	High-end aviation installations
Installation:	Professional installation recommended
Reliability:	Professional-grade for critical applications
Features:	Enhanced false alarm reduction
Compatibility:	ICAO Type-Certified system integration



MES TECH AWA OPTIONS

I N T E R N A T I O N A L

PART NUMBER	DESCRIPTION
19000081	AWA Kit: Communication, RS-422/485 to RS-232
19000084	AWA Kit, GTA Transmitter with Antenna, Surge Protect, Power Cable
19000083	AWA Kit, Dial Telephony Voice
19000060	AWA Kit: UHF Modem, 5W, w/ Antennae, Coax, SPD
19000080	AWA Kit: Communication, Short Range Modem
19000082	AWA Kit: Ethernet Port communication
25000140	AWA Kit: Tower, Frangible, Obs Light, LTX Protect, No ESS
25100031	AWA Kit: Tower, Fixed Lattice, Obs Lights, LTX Protect, No ESS
20250130	AWA Kit: DCP with mounting hardware
20250132	AWA Kit, Desktop Computer with O/S, Monitor, KB, Mouse, Speaker, Microphone
20250222	standalone CPS Kit
23250045	Manual, Set, Technical Documents, AWA AWOS
20500050	Airport Weather Advisor® Software (must be ordered with AWOS system)

MESOTECH ICAO Compliance

INTERNATIONAL

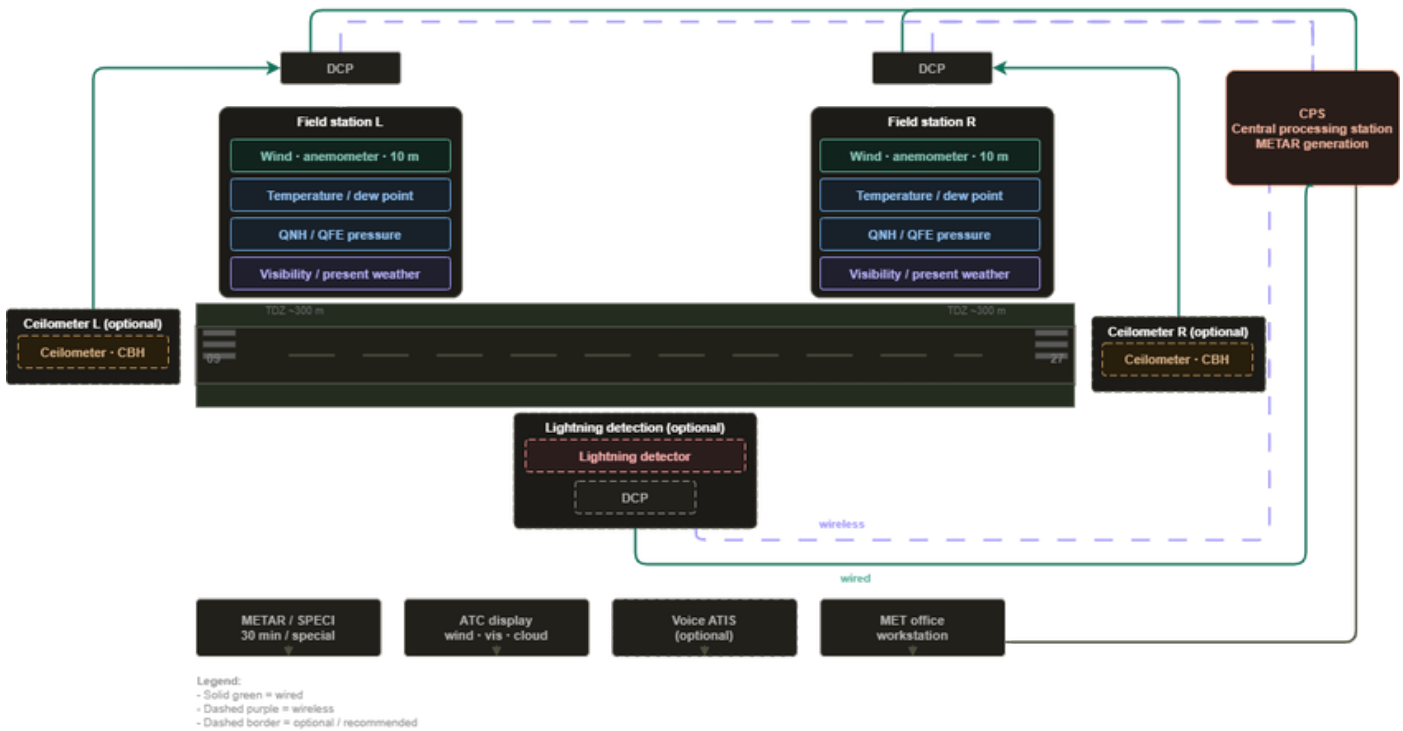
ICAO Annex 3 Parameter	ICAO Requirement	Mesotech AWA® Solution	
Surface Wind Direction & Speed	ICAO Annex 3 / Doc 9837	FT Technologies FT742 Ultrasonic Wind Sensor	
Atmospheric Pressure (QNH/QFE)	±0.5 hPa accuracy requirement	Dual Digital Barometer system - ±0.03% FS (0.3 hPa)	
Air Temperature & Dew Point	ICAO Annex 3, ±0.5°C accuracy	Air Temperature/RH Probe with Motor Aspirated Radiation Shield (MARS)	
Horizontal Visibility / MOR	ICAO Annex 3, Doc 9837, ICAO 9328	Campbell Scientific CS120A or Campbell Scientific CS125	
Present Weather	WMO 4680 codes; ICAO Annex 3	Campbell Scientific CS125	
Cloud Base Height (CHB)	ICAO Annex 3; up to 5 layers	Eliasson CBME120 Ceilometer (FAA certified, WMO, ICAO, CAP437 compliant)	
Precipitation / Rainfall	ICAO Annex 3	Mesotech International Tipping Bucket Rain Gauge or Campbell Scientific CS125	
Runway Visual Range (RVR)	ICAO Annex 3, Doc 9837	Campbell Scientific CS125 (or CS125A) and Senseca ALS-2	
Lightning / Thunderstorm Detection	ICAO Annex 3	Senseca LTD-200 Lightning Detection Sensor	
Runway Lightning Status / Heading	ICAO Annex 3 (CAT II/III)	Mesotech RHLIM – Runway Heading & Lightning Intensity Monitor	
Data Collection & Processing	ICAO Annex 3, automated AWOS	Mesotech International Data Collection Platform (DCP)	
METAR/SPECI Generation	ICAO Annex 3, Appendix 3	Central Processing Station (CPS) with Aviation Weather Advisor® (AWA®)	
Voice ATIS Broadcast	ICAO Annex 3	CPS with AWA®: up to 4 telephone lines + VHF transmitter	
Remote Monitoring	ICAO Annex 3	AWOS Live® secure cloud platform – 24/7 remote access	
System Self-Testing	ICAO Annex 3	Built-in diagnostics in DCP, CPS and all sensor	
Data Dissemination	ICAO Annex 3	Mesotech International AWOS supports data transfer via different channels and types of communication	

MESOTECH AWOS System Diagrams

INTERNATIONAL

Non-Precision Approach (NPA)

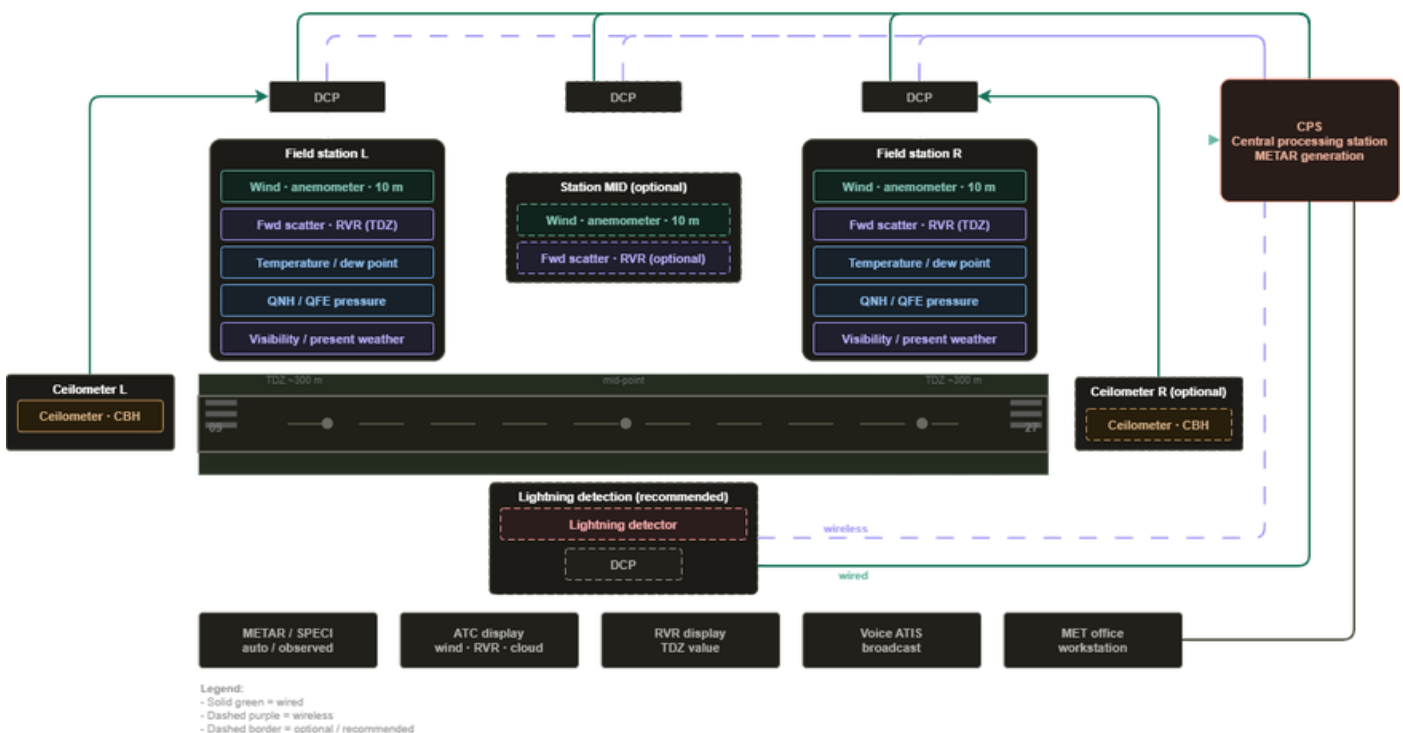
VOR / NDB / GNSS - DH ≥ 75 m - no RVR required - ICAO Annex 3 / Doc 9837



The NPA configuration supports non-precision instrument approach operations providing wind, visibility, present weather, temperature/dew point and pressure at the Touchdown Zone. A single field station with DCP communicates to the CPS for METAR generation.

CAT I – Precision Approach

DH ≥ 60 m (200 ft) - RVR ≥ 550 m - ILS / GBAS - ICAO Annex 3 / Doc 9837

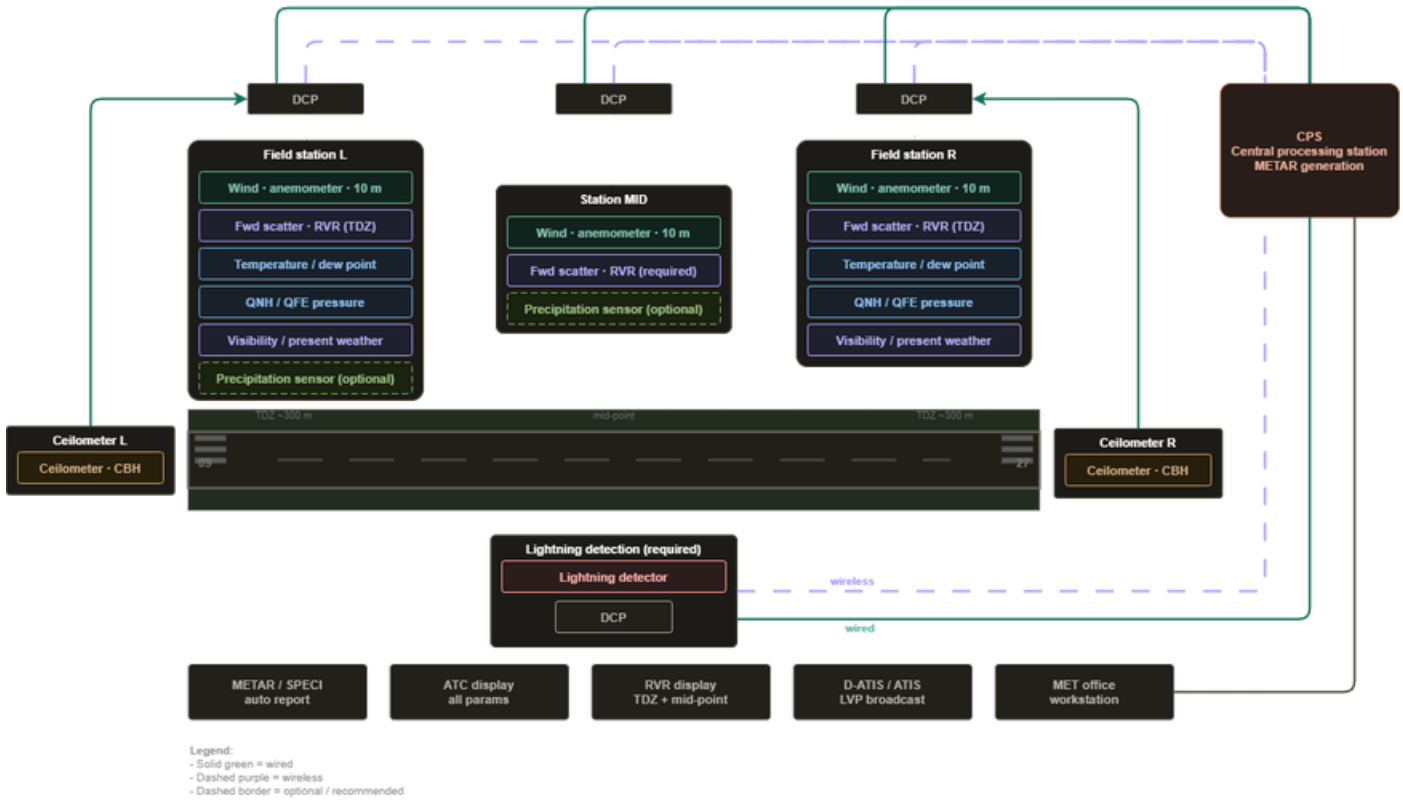


MESOTECH AWOS System Diagrams

INTERNATIONAL

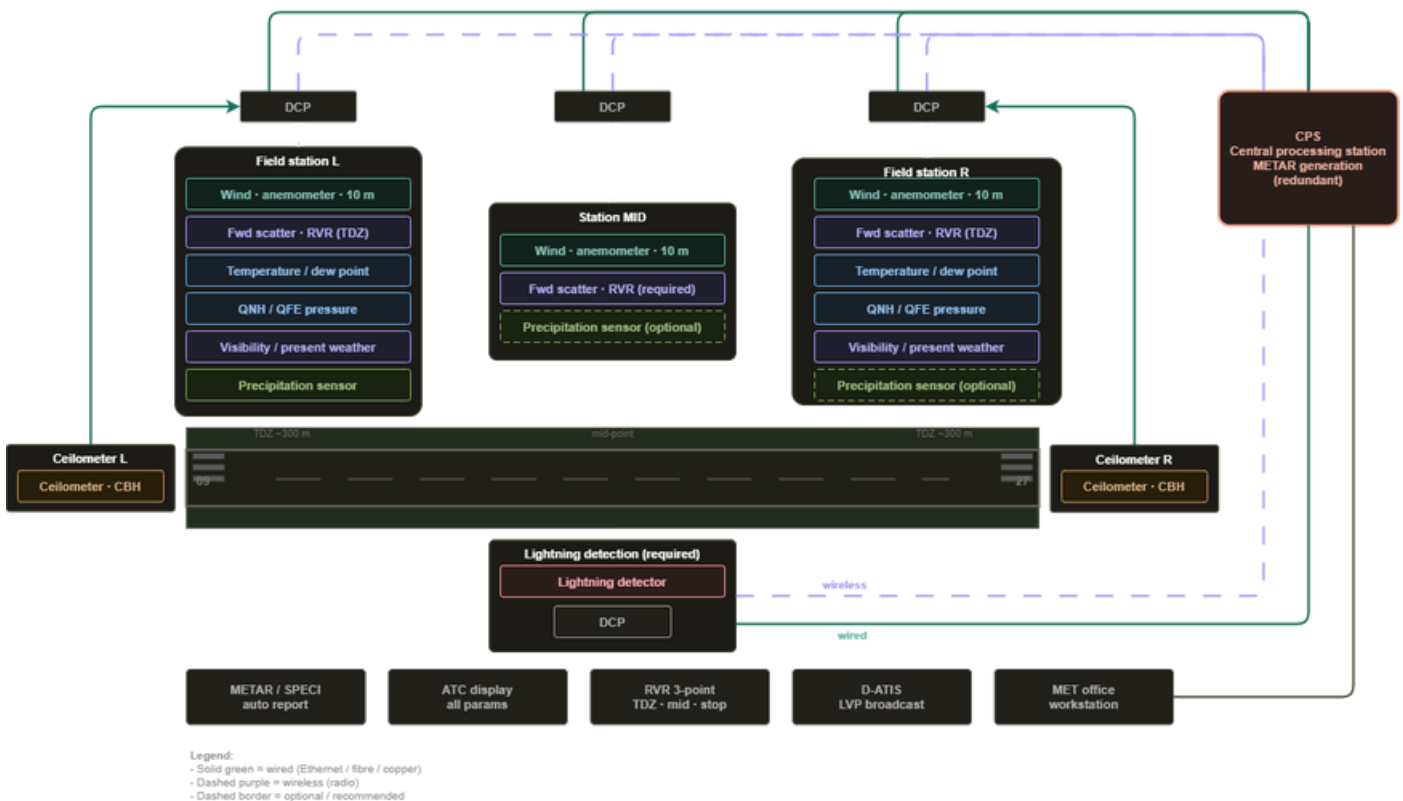
CAT II – Precision Approach

DH 30–60 m (100–200 ft) · RVR ≥ 300 m · ILS · LVP required · ICAO Annex 3 / Doc 9837



CAT III – Precision Approach

DH < 30 m or none · RVR < 300 m · ILS · LVP + stop bars + system redundancy required · ICAO Annex 3 / Doc 9837





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