SMF/Mobile

AGL Mobile Photometric Measurement System

DATABASE
The system DB stores information of Airports, fixture's models and parameters, GPS light position, measurement results, graphics tables, pictures and statistical data

REPORTING
The system provides a full and user configurable reporting capability such as:

- Iso-candela Diagrams
- Maintenance and repair reports
- Lights performances bar charts
- ICAO/EASA/FAA compliance data tables

DOCUMENTATION
SMF/M system comes with Operating & Maintenance Manual, Manufacturing Test Data Reports and Calibration certificates

TRAINING
A complete training course will cover all the installation, operating, reporting and maintenance topics, allowing the customer to reach the full control of the system

DIAGNOSTIC
SMF/M features an automatic self- diagnostic subsystem to continuously check the instrument components

TECHNICAL SUPPORT
Argos technical support assists customers during the whole system lifetime

EFFICIENCY
Fast installation on commercial and industrial vehicles. Rapid clearance of runway with Stand-by and Resuming functions for interrupted measurements

TURNKEY SOLUTIONS
Universal Mechanical Frame
No special Vehicle required
Automatic database filling procedure for light fixtures positioning and identification

SMF/M standard configuration

SMF/M is a world class system for the photometric measurement of Airfield Ground Lighting system designed to operate under ICAO/EASA/FAA recommendations.

Trailer configuration (SMF/MT)

System is based on the latest technologies and features optoelectronic sensors for light and color detection as well as a SBAS GPS/ D-GPS for accurate light position identification.

SMF/M is composed of a sensor bar equipped with 17 LUX sensors distributed over the measurement bar in order to reach the best distance/resolution ratio with respect to light beam spread and with 7 sensors sub-array down facing the runway to allow for a precise light detection and distance measurement.

The sensors bar is installed to be orthogonal to the direction line and thus is able to cut the light beam emitted by the airfield fitting at lower angles when the bar is far and at upper angles as soon as the bar comes closer to the fixture under measurement. In case of transverse light rows measurement, such as Threshold, End, Approach, Stop Bar, to reduce the time needed for measurement, the sensor array can be installed in vertical position, with vehicle running parallel to the lights row at a given distance.

- **Light Measurement according to ICAO/ EASA/FAA recommendations**
- **Maximum, Average and Minimum light beam intensity, Elevation and Azimuth (TOE-IN) angles measurement**
- **Light Colour measurement according to CIE 1931 (ICAO Annex 14, 8th Ed. 2018)**
- **Measurement of PAPI units photometric parameters (intensity, chromaticity and isocandela diagram)**
- **LED lights measurement supported**
- **Accurate SBAS GPS/D-GPS based light identification**
- **Measuring speed up to 70 Km/h**
- **Automatic user defined measurement reporting (PDF)**
- **Measured data exportable for user purposes**
- **Installation compatible with any kind of vehicle**

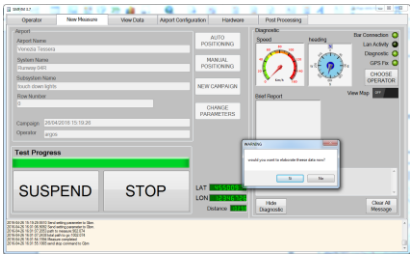
For a safe and efficient driving, Operator is assisted by a monitor showing the relative position of the bar against the lights stream under measurement, while an acoustic tone warns the operator when the bar is going close to borders of the allowed corridor.

The SMF/M system database allows to save measurement data sets of several airports. A powerful report generator is able to provide PDF tables, graphics and data according to selections defined by the user.

Vertical bar measurement set-up

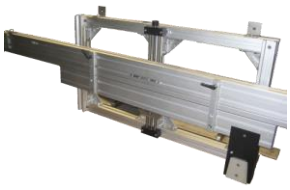
SMF/Mobile Components & Software

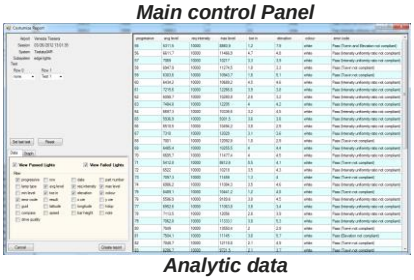
The measuring bar hosts 17 light intensity sensors, 1 CIE 1931 color sensor, 1 light height and range detection optoelectronic sensor, 7 downward light sync sensors, 3 supports for visual alignment Wi-Fi camera. Bar is connected to DCB through the Master Cable.



Main control Panel

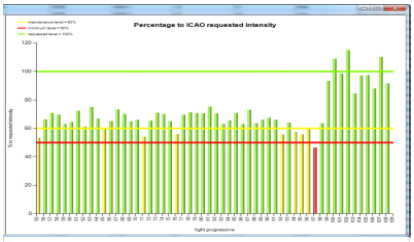
The main system aluminum frame, with bidirectional sliding arm. The frame hosts the measurement bar and is fitted to the front side of hosting vehicle, or trailer, through a suitable mechanical interface. The system frame has a bar lift mechanism to set the height of the bar to the proper value according to measurement. The bar can be lifted up to 1 m height.



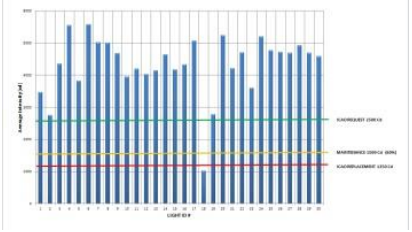


Analytic data

The high resolution odometer for accurate distance measurement. It's provided with a robust cable to be connected to DCB box.

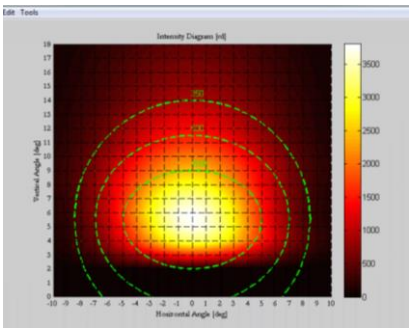


DCB - Mobile Data Control Box, hosting the SBAS-GPS/D-GPS receiver station, connectors to sensor bar, odometer, on board system laptop, system power supply and cable to vehicle 12 VDC power input.



Graphical data presentation

Driving Video Assistance system, made of Wi-Fi CCD camera and Wi-Fi connected on-board monitor. Wi-Fi camera is powered by the main sensor bar (12 VDC). It's provided with a separate antenna for the best communication with the on-board monitor.



ISOCANDELA diagrams

On-board System Laptop running the system software under MS Windows 11 operating system, providing data processing and operator HMI. Laptop may be moved to the office area to analyze data, prepare, print and send measurements reports.

Secondary measuring sensor bar for double side simultaneous measurement operations. The secondary bar has the same number of sensors of the main one, while no driving camera is installed. It is connected to the main bar through a IP67 protected cable and connector.

Specifications

- Measurement speed: up to 70 Km/h
- Double bar measurement option
- High accuracy odometer with resolution better than 2 mm
- 16 bit high speed A/D conversion
- SBAS/LAS GPS integrated receiver

Sensitivity:	0.25 Lux
Accuracy:	< 5%
Repeatability:	< 5%
Operating Temperature:	-20°C / 55°C

Certifications: ENAC (Italian Civil Aviation Authority) Certification according to ENAC APS-02 Technical Standard - China Civil Aviation Authority Certification, Bureau Veritas, RINA

References

Italy, Bangladesh, Bulgaria, Cameroun, China, Canada, Croatia, Denmark, Egypt, Estonia, Germany, Greece, India, Indonesia, Korea, Lithuania, Malesia, Malta, Poland, Romania, Russian Federation, Senegal, Spain, Taiwan, Thailand, Turkey, U.A.E.