

The Lakeside Conference
Safety in Mobility 2008

ATTC
AUTOMOTIVE TRAFFIC TELEMATICS CLUSTER

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TECH



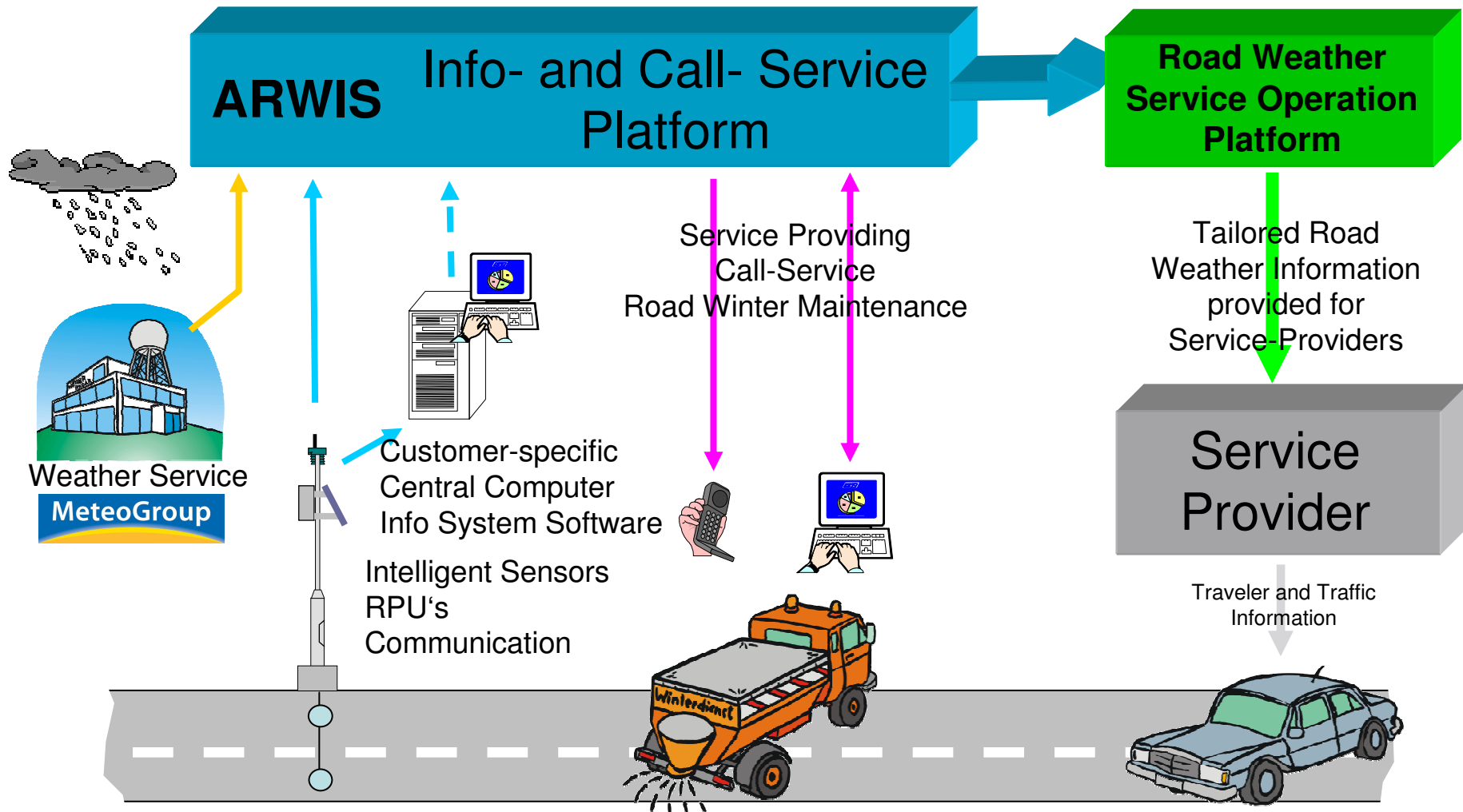
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Smart and Reliable Roadside Monitoring System with UMB Technology

Karl E. Schedler

2008-07-11

The Road Weather Information Policy



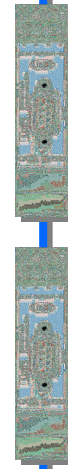
New Intelligent Sensor Technology

“All in One”
atmospheric
measures



digital standard
Interface with
open protocol

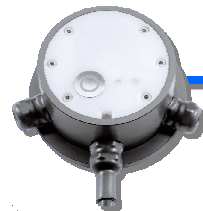
UMB
Technology
= modular
= extendable
= low power



radio- or line-
communication



“All in One”
road condition
measures



digital standard
Interface with
open protocol

Complete
Road Weather Stations
built up with
a few elements

This technology makes it affordable to densify the data acquisition network in order to enhance the capability of providing optimal Road Weather Condition Information

Intelligent and compact device for atmospheric measures



WS600

Innovative principle (**R²S**) of measuring precipitation by means of **microwave doppler radar**.

- Type of Precipitation (Hail, rain, snow, drizzle)
- Intensity of Precipitation (mm/h)

Measurement of wind direction and wind speed by means of **ultra sonic** principle.
= precise measurement without mechanical moving parts.

Measurement of air pressure

Protection shield and active ventilation for measurement of air temperature and relative humidity.

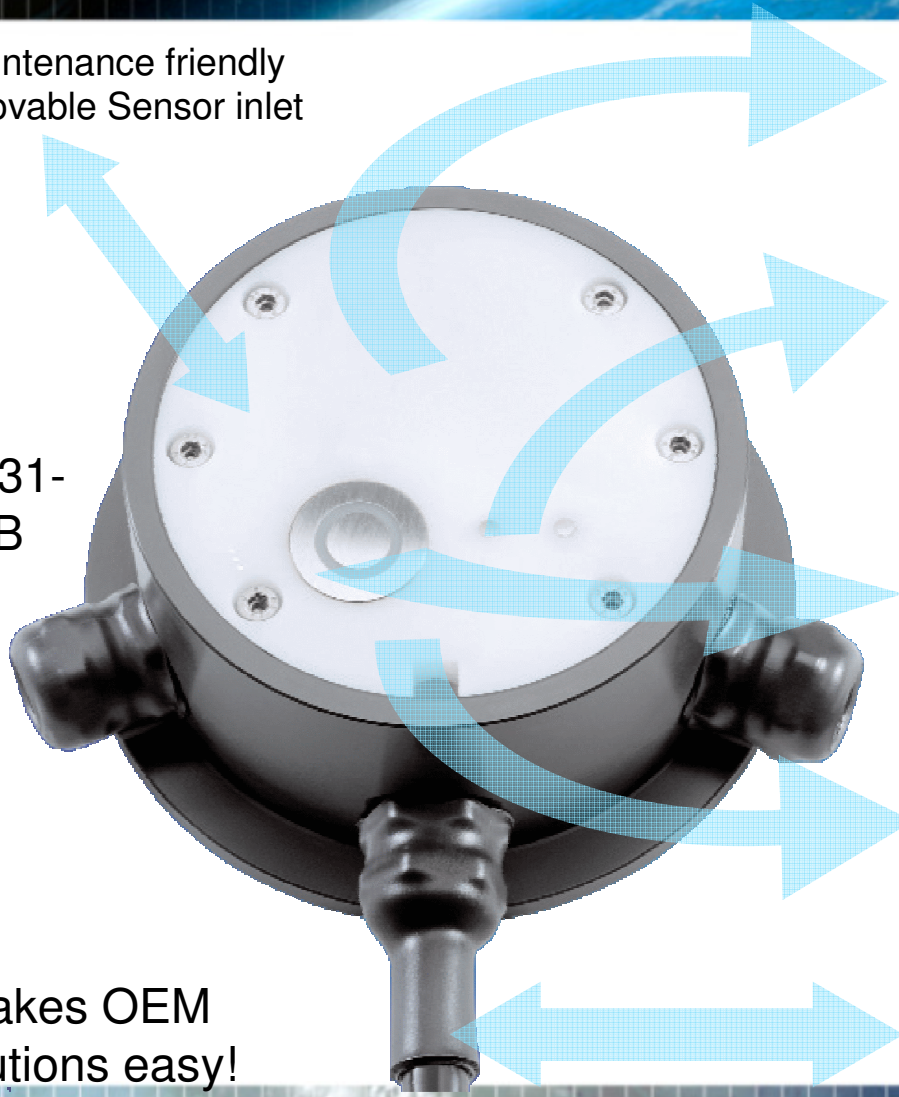
Digital communication with open protocol
Power supply in one cable

Intelligent and compact device for road condition measurement

Maintenance friendly
removable Sensor inlet

IRS31-
UMB

Makes OEM
solutions easy!



Innovative **microwave radar** measurement
of waterfilm depth up to 4 mm
- Resolution: 0,01 mm
- Accuracy: 0,1 mm + 20%

Passive Measurement of salt concentration
and Freeze Temperature
by means of **conductivity** allow for
waterfilm depth

Surface condition detection by means of
measuring the **dielectric** characteristic
→ dry, moisture, wet, ice, snow, slush

Surface Temperature and also 2 Sensor
Interfaces for Subsurface Temperature
(e.g. 30 cm)

Digital data communication Interface
(RS485) with **open protocol**

Proof of the Quality and Calibration Certificates

LUFFT Mess- und
Regeltechnik GmbH



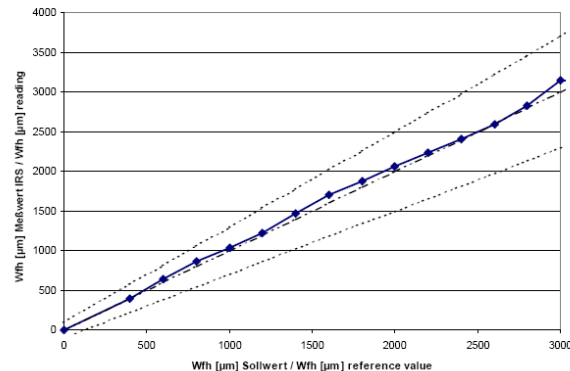
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Herstellerprüfzertifikat M nach DIN 55350-18-4.2.2
Manufacturer test certificate M according to DIN 55350-18-4.2.2
Sensornummer / Sensor number: 1234

Kalibrierung Leitfähigkeit / Calibration conductivity

Verwendete Salzlösung Used saline solution	Sollwert reference value	Messwert reading
H ₂ O + NaCl	2,0 %	2,0 %
H ₂ O + NaCl	4,0 %	4,0 %
H ₂ O + NaCl	12,0 %	12,1 %

Kalibrierung Wasserfilmhöhe / Calibration water film height



Funktionstest / Function test

Prüfpunkt Test point	Prüfbedingung Test conditions	Bestanden Passed	
		Ja Yes	Nein No
Temperaturzyklus von -30°C...+70°C Temperaturecycle from -30°C...+70°C	Alle Messwerte korrekt All measured values correctly	X	

Accurate measure of Waterfilm depth is important not only for road condition but also for passive measure of Freeze Temperature!

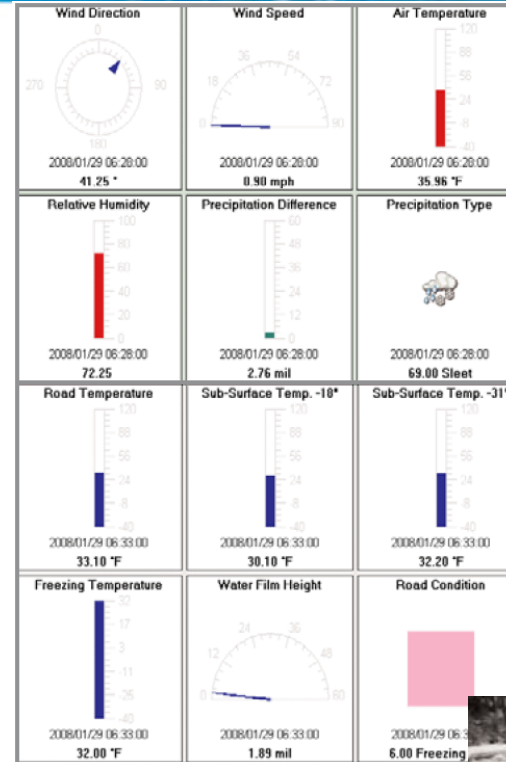
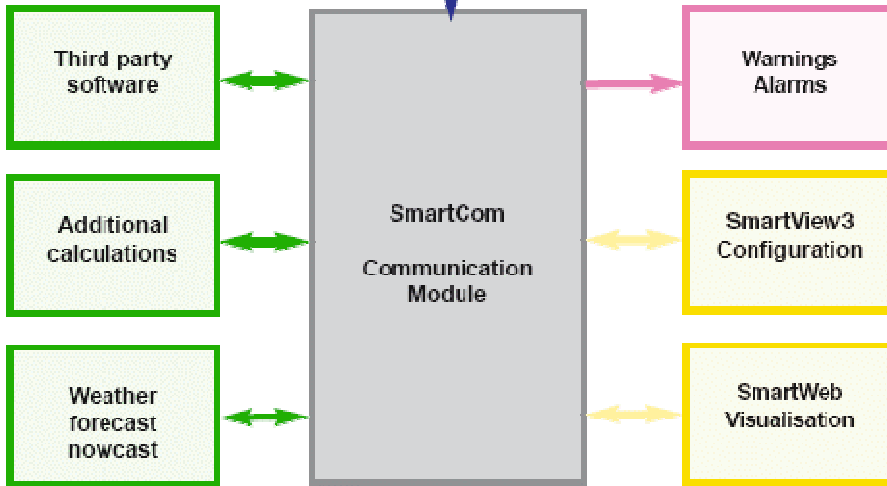
Every Sensor is shipped with a test certificate

Stand Alone solutions with SmartView central computer Software



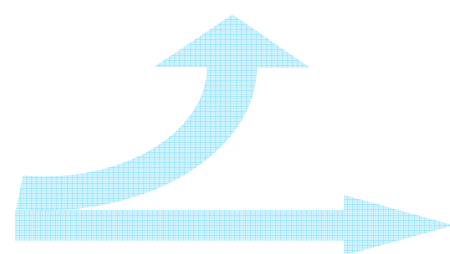
Data collection / polling / GPRS

MYSQL Database



Indicator display of Measurements

Camera pictures of road condition



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Thank you for your attention.

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