

*a passion for precision · passion pour la précision · pasión por la precisión · passione per la precisione · a passion for precision · passion po*



[www.lufftusa.com](http://www.lufftusa.com)

# Lufft History

- Lufft was founded in July of 1881
- Just celebrated our 130<sup>th</sup> Year
- European headquarters: Stuttgart, Germany
- USA headquarters: Youngsville, NC
- Business: Weather Sensors and RWIS



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# Modern Technology

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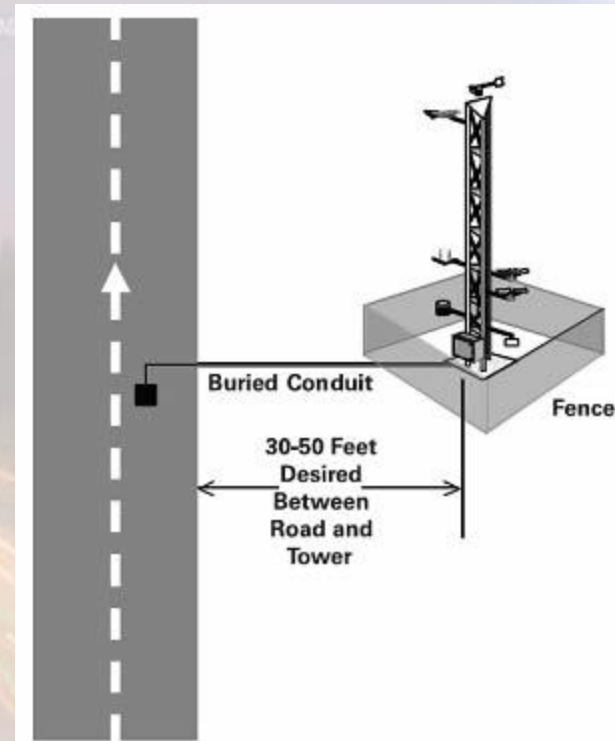
## ***Benefits:***

- ***Open Architecture***
- ***Flexible***
- ***Reduce Cost***
- ***Improved Data Quality***

# Past Technology



# RWIS Technology



# Modern Technology

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## ***Benefits:***

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- ***Flexible***
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- ***Improved Data Quality***

# WS Family of Sensors



**WS200**



**WS300**



**WS301**



**WS400**



**WS500**



**WS501**

# WS600-UMB

**Innovative method: R2S microwaves—doppler radar**

**Precipitation type** (rain, snow) / precipitation intensity (mm/h)

**Measurement of wind speed and wind direction**

**Measurement of air temperature and rel. Humidity**

**Data transmission and power supply in one cable**



UMB sensors

# R2S-UMB Radar precipitation sensor



Innovative principle: **R2S** microwaves–doppler radar

Precipitation type (rain, snow, mixed rain, ice rain and hail) /  
Precipitation intensity (mm/h)

Maintenance-free sensor

Accumulation calculation (resolution 0.01mm / 0.1mm / 1mm)

Digital data communication with **standard protocol** (Lufft-UMB-  
Protocol) and 2 digitale outputs

# Road Paving/Resurfacing



# IRS31-UMB Intelligent Road Sensor

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Passive salt concentrations- and freeze point temperature measurement by measuring the **conductivity dependent on water film height**

Road condition detection → dry, damp/humid, wet, ice, snow (critical), critical wetness

**Maintenance-friendly, exchangeable electronics**



# ARS31-UMB Active Road sensor

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Measurement of salt concentration and freeze point temperature by **active cooling and heating** of the sensor surface.

**Maintenance-friendly, exchangeable electronics**



# Non-Invasive

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# NIRS31



# NIRS31 Non-Invasive Pavement Condition Sensor

Measurement of surface conditions such as wetness, ice, snow or frost.

## •FREEZE TEMPERATURE – NON-INVASIVELY

- Measurement of water film height
- Measurement of ice percentage in water and determination of freeze temperature
- Measurement of friction
- Fully integrated surface temperature measurement (pyrometer)
- Electric Isolation of RS485 interface for network with other UMB sensors
- Easy to mount
- Low Maintenance costs by firmware-Updates via UMB-technology
  - *Automatic calibration according to type of road (concrete or asphalt)*
  - *Automatic recalibration during dry periods (surface conditions)*
  - *No need to adjust the unit according to the distance between installation point and road spot*
  - *Long-term stable measurement technology*
  - *Infrared temperature measurement optionally integrated into the same sensor*



# UMB-technology

Universal-Measurement-Bus

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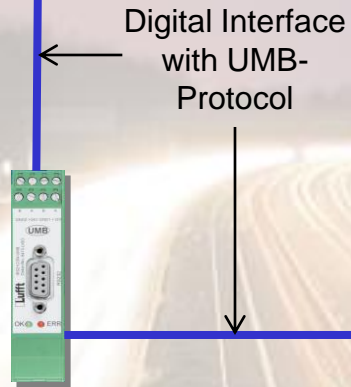
***Ability To Install an RWIS  
Using Lufft Technology with  
minimal investment  
No RPU/Datalogger Needed***

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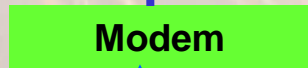
# Wind Sensor only RWIS



WS200



Digital Interface  
with UMB-  
Protocol



Radio or Cellular  
Connection



# Pavement Sensor only RWIS



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NIRS31

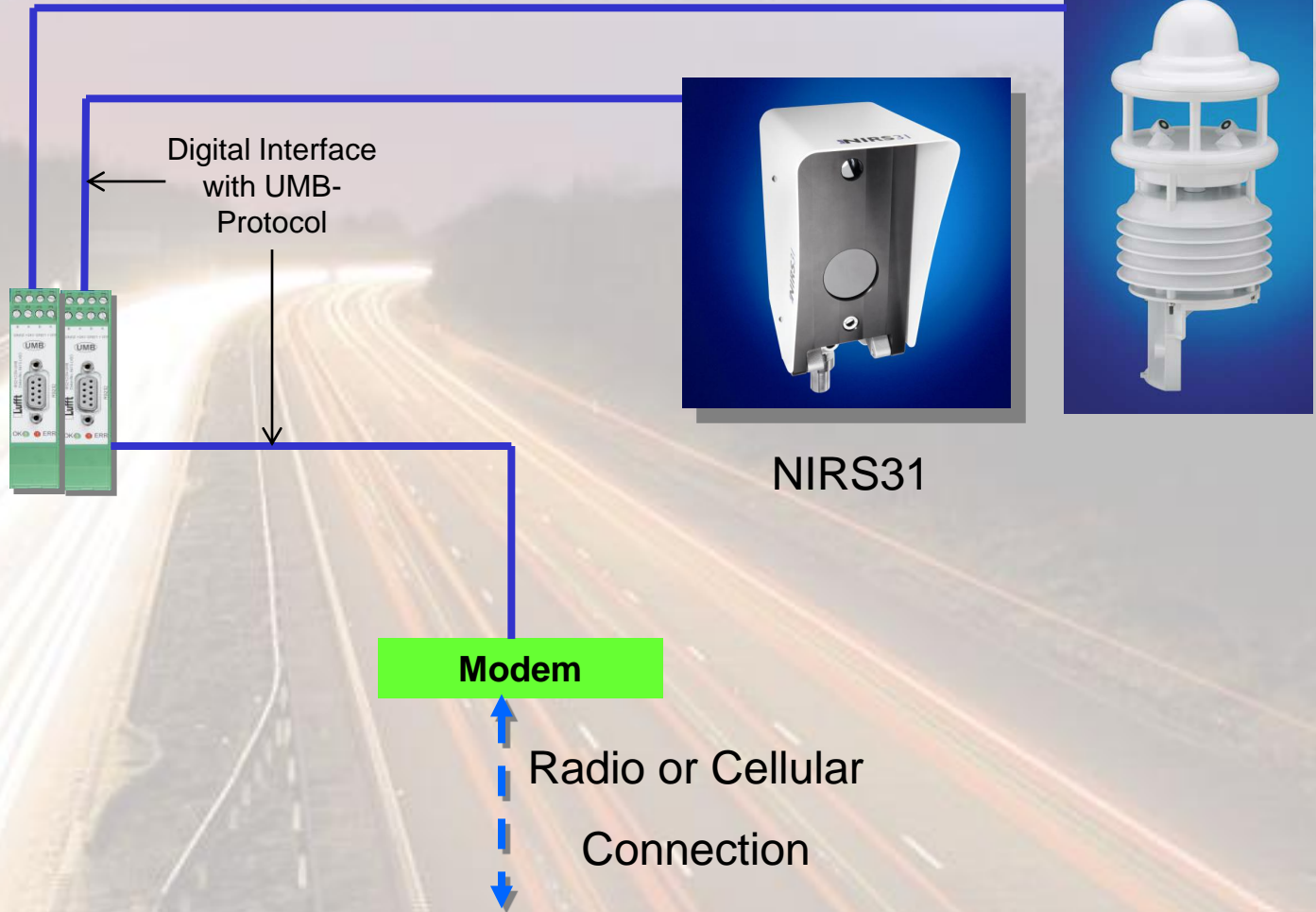


**Modem**

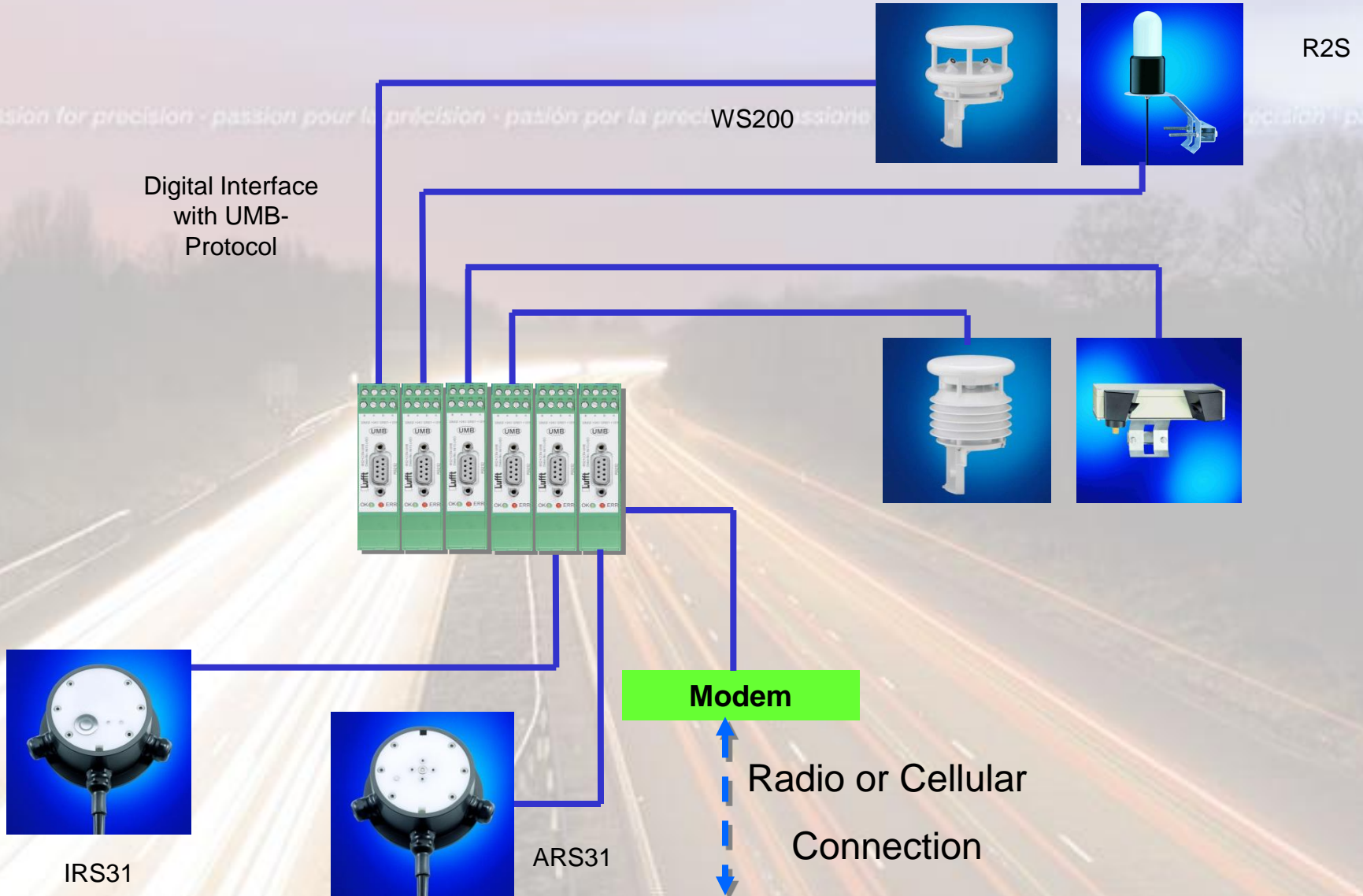
Radio or Cellular  
Connection

# Small Compact RWIS

WS600



# RWIS Site with No RPU



# Using Today's Technology

## ***Summary:***

- ***Utilize Open Architecture Schemes***
- ***Keep The Systems Flexible***
- ***Question The Paradigm***

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# Thank You