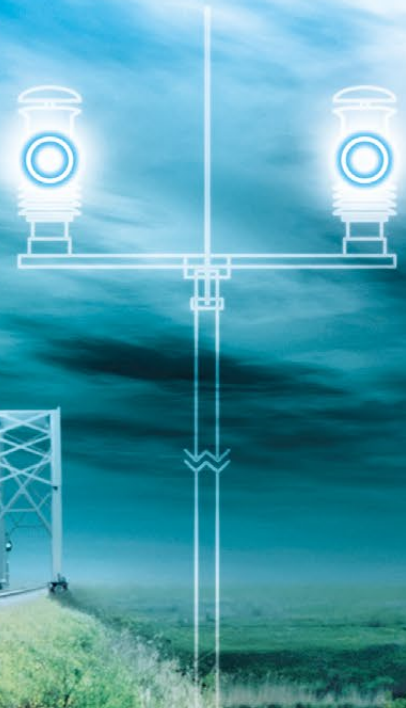


MISTRAL

Accurately Measuring Wind and Air Stream

Robust Sensor Concept
without Moving Parts



MISTRAL

Crosswinds – Enormous Danger on Bridges and Open Areas

Storms may greatly impair rail traffic. Especially on bridges and open areas dangerous crosswinds do occur very likely. This will endanger a train rapidly.

The reliable and stable diagnostic system **MISTRAL** gives you more safety and better cost-effectiveness in the railway operation. It is all-purpose and delivers accurate wind and air stream data. Deployment in a tunnel may be very important. During a tunnel fire creating toxic gases it is of utmost importance for the rescuers to know the streaming direction of the air to avoid the gases.

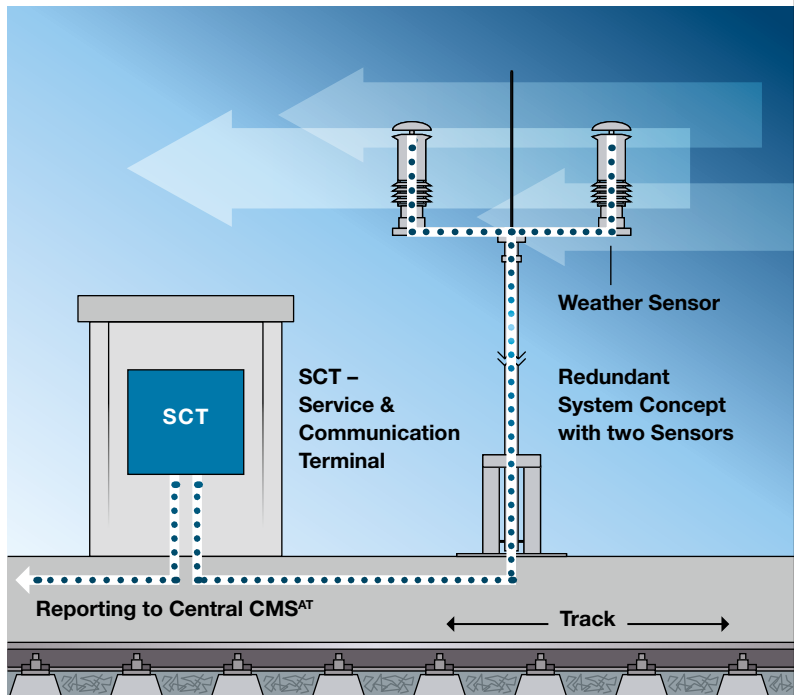
Highly Robust Weather Sensor for Extreme Conditions

The **MISTRAL** weather sensor uses a thermal measuring method. This facilitates a very rugged construction that performs reliably worldwide even under the most extreme conditions. The system is working accurately already at very low wind speed due to its lack of mechanical inertia – precise results at every wind speed.

In contrast to traditional wind sensors the **MISTRAL** diagnostic system employs no mechanically moving part (e. g. vortex wheel). Neither pollution nor icing are of significance. This leads to minimal costs for maintenance and service. The system layout guarantees a particularly long life time.



Highly Robust Weather Sensor



System Benefits

Technical Characteristics MISTRAL

- Height of pole up to 4.0 m
- UPS with 30 minutes backup time
- Lightning protection 15 kV
- Cabinet ventilation/air conditioning
- Availability 99.98 %, MTBF \geq 87,450 h
- Measuring range air stream speed: 0 – 100 m/s
- Resolution $<$ 0.1 m/s, Precision \pm 0.5 m/s rms \pm 5.0 % rms of MV
- Measuring range wind direction: 0° – 360°, resolution 1°, precision \pm 3°

Environmental Conditions

- Air temperature range: -25 °C to +40 °C, rel. humidity: 0 – 100 %
- Protection against salty mist: EN 60945
- Mechanical stability, vibration: BV 0240
- Protection class: DIN EN 60529
- RoHS conformity

MISTRAL Desert

Crosswinds and Sand – A Threatening Combination

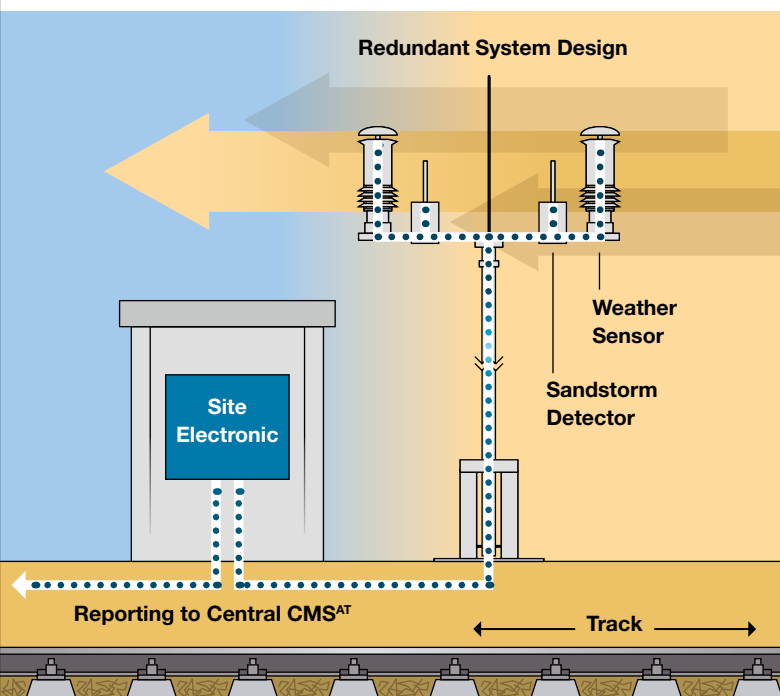
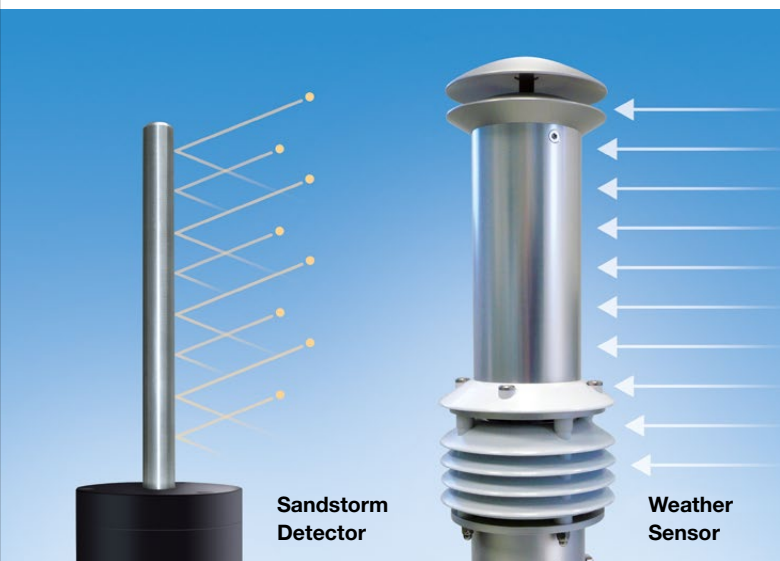
During storm signals are set to stop very fast – a storm may affect rail traffic in a serious way. It is especially critical when a train is suddenly endangered by a squall.

In deserts an even more threatening situation arises from sand or dust that is driven by the wind. It obscures the view and the sand build-up on top of the rail may rise to a level where derailment happens. In that event it is necessary to be warned in time, to be informed about the danger ahead. Therefore a reliable system is of great importance.

Effective Diagnostic System for Extreme Conditions

The wind sensor of the **MISTRAL Desert** is based on a thermal measuring principle that allows a robust construction making the device apt for extreme environments. The sand particle detector is sensitive but immune against abrasion. It is based on acoustic particle detection.

The system works without inertia and is therefore able to deliver precise measurements even at very low wind speed. No moving parts guarantee the functionality under every condition. At the same time the construction of both sensor types allows a long life time / MTBF of several decades and needs minimal maintenance.



Technical Characteristics MISTRAL Desert

- Height of pole 3.5 m to 4.0 m
- Connectivity to network via Ethernet and TCP/IP
- UPS with 30 minutes backup time
- Lightning protection 15 kV
- Cabinet ventilation / air conditioning
- Environmental protection IP 66 / IP 68
- Availability 99,98 %
- MTBF over 10 years
- Life cycle min. 10 years

Environmental Conditions

- Air temperature range: -40 °C to +70 °C
- No abrasion by sand
- EMC according EN 50121-4
- Environmental conditions according EN 50125-3
- Mechanical stability
- RoHS conformity

voestalpine SIGNALING Siershahn GmbH

Headquarters

Bahnweg 1
56427 Siershahn
Germany
T. +49/2623/6086-0
F. +49/2623/6086-60
info.siershahn@voestalpine.com

Branch Office The Netherlands

Coenecoop 84
2741 PD Waddinxveen
The Netherlands
T. +31/182/6222-70
F. +31/182/6222-89
info.nl.siershahn@voestalpine.com

Branch Office Australia

Unit 14, 160 Hartley Rd.
Smeaton Grange, NSW 2567
Australia
T. +61/246/48-1407
F. +61/246/48-1407
info.au.siershahn@voestalpine.com