

Cordulus Road Advanced

Hardware description

Cordulus Road Advanced is an IoT weather station suited for road weather condition monitoring in both urban and rural areas.

The weather station consists of a basic configuration and possible additional sensors. The basic configuration includes an air temperature sensor, relative humidity sensor and up to two road condition sensors (IRS31Pro from Lufft). Based on the readings, a calculated dew point is also provided. A mainboard interfaces to the sensors and communicates with the Cordulus cloud system. The basic configuration includes power supply, breakers and fuse for connection to the power grid.

Advanced can be connected to fixed power, or connected to our solar cell and battery solution. The core technical solution for the Cordulus Road Advanced station is shared with other Cordulus weather stations including Cordulus Farm with thousands of operational weather stations deployed. Data is communicated to the Cordulus cloud system where data is available through a REST API. Third party users of data such as "Vejvejr" in Denmark use this API to get live and historical data.



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Cordulus Road Advanced configuration:

Sensor	Range	Resolution	Accuracy
Air temperature	-40 to 90 deg °C	0,01 deg °C	+/- 0,3 deg °C @ -40 to 0 deg °C +/- 0,2 deg °C @ 0 to 90 deg °C
Relative humidity	0 - 100%	0,01 %	+/- 2 %point
Road temperature	-55 to 100 deg °C	0,01 deg °C	0,1 / 0,2 °C
Water film height	0 to 4000 µm	<0,01mm	<30%
Freezing temperature	-40 to 0 °C	0,1 °C	+/- 0,5 °C @ -2,5 to 0 C° +/- 20% otherwise
Ice Percentage	0 - 100%	0,1%	N/A
Road condition	dry/damp/wet/ice or snow/moist with salt/wet with salt		
Saline concentration	0 - 100%	0,1%	N/A

Please refer to the IRS31Pro specification for details on road condition monitoring parameters.

The station offers options for two additional sensors:

Sensor	Range	Resolution	Accuracy
Rain	0-60 mm / hour	0,1 mm	+/- 2%
Wind speed	0,5 - 50 m/s	0,01 m/s	+/- 0,5% @ < 5 m/s +/- 3% @ 5 - 50 m/s

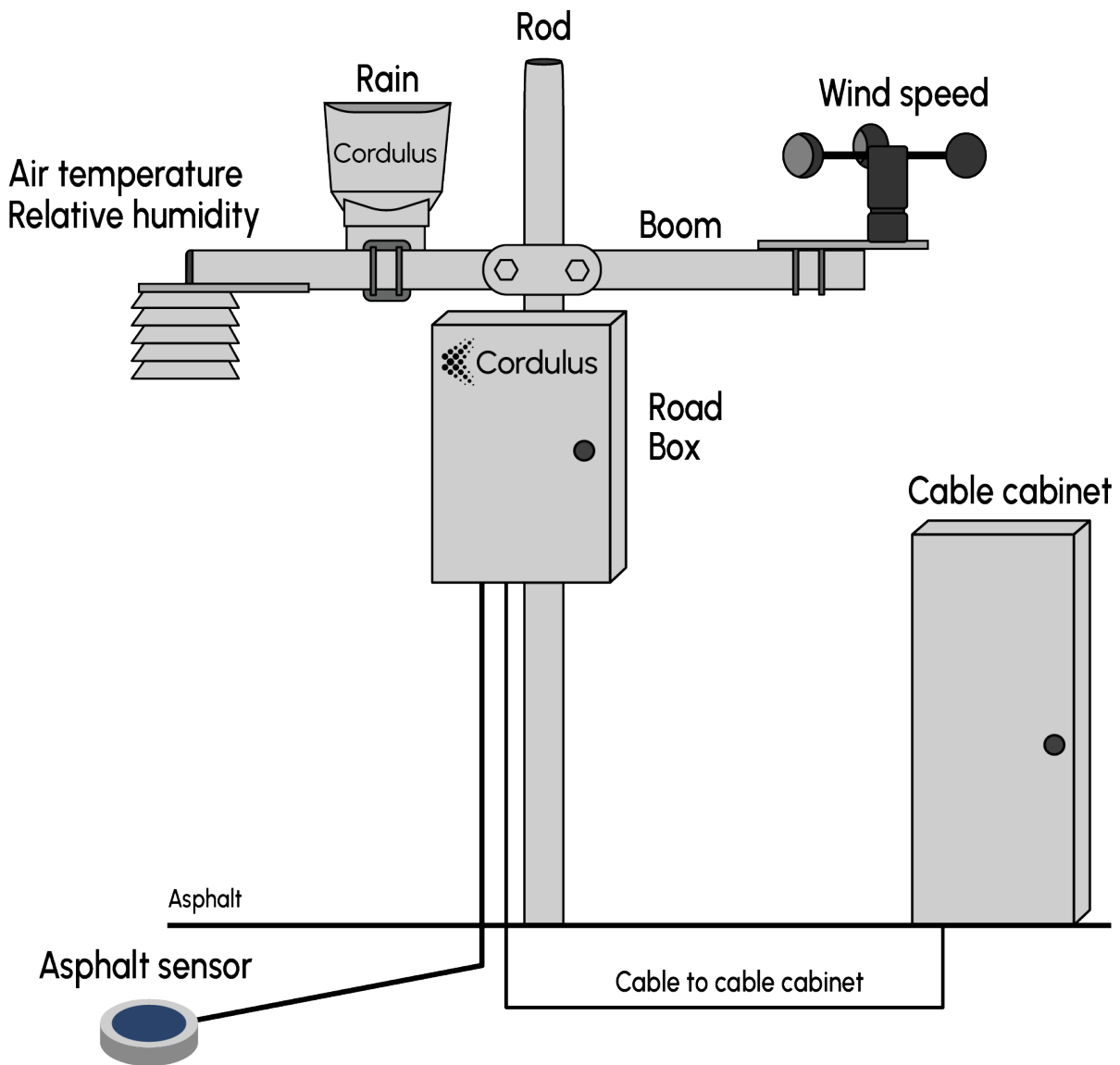
The Danish Road Directorate (Vejdirektoratet) has tested and evaluated the sensors and approved the Road Standard weather station for delivering data to "Vejvejr".

Note the rain sensor is a tipping bucket sensor and hence only measures rain

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