VAISALA Xweather

TempCast

Vaisala Cast™ Sensor

Features

- Wireless NB-IoT communication
- Self-powered with 3-year battery lifetime
- Measures:
  - Air temperature
  - Relative humidity
  - Dew / frost point
  - Surface temperature (optional)
- Reports observations with enhanced point forecasts
- Installation to existing pole and lattice mast structures
- Maintenance-free due to periodic humidity sensor self-cleaning
- Easy sensor replacement from ground level
- Data available through Vaisala Wx Horizon or API

Vaisala TempCast is an easy and affordable way to monitor key temperature parameters from any critical location. The wireless, pole-mounted sensor has different variants to measure air temperature, relative humidity, and surface temperature.

Monitor frost formation on roads

Surface and dew point temperatures are important when assessing the risk for frost formation on the roads. TempCast reports high-quality observations and enhanced point forecasts so that you can be prepared for what is ahead within the next 72 hours. This information allows you to make the right treatment decisions and act at the right time.

Get measurements from locations not feasible before

TempCast is wireless and mounts to existing infrastructure allowing flexible installation to various locations. External powering is not required. This makes it a cost-effective solution for covering data gaps in your existing weather observation network and an ideal starting point for gaining access to local weather observations.

Sensor replacement takes 5 minutes

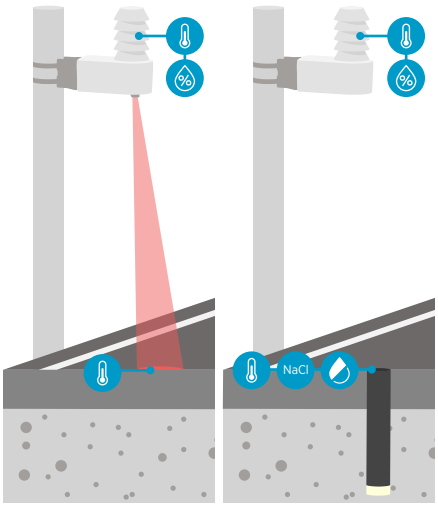
The sensor does not need any maintenance during its lifetime. It has an automatic self-cleaning function that removes contamination from the humidity sensor. At the end of its life, the sensor is replaced with a new one. There is no need for a crane or a ladder to access the sensor. The replacement takes 5 minutes by a single person from ground level by using a telescopic rod. The sensor is secured to its mounting bracket with a convenient twist-lock mechanism. This ensures that the replacement process is fast and safe.

Easy access to data

Measurement data from TempCast is automatically available in Vaisala Wx Horizon. Wx Horizon combines local sensor observations, radar data, and alerts in one subscription package for enhanced road weather forecasts. For integration to other systems, the Wx Horizon API can be used.

Best performance with Vaisala GroundCast

TempCast with remote surface temperature measurement is a convenient product for frost monitoring. When you want to monitor ice formation as well and further enhance your road weather forecast, you can co-locate TempCast with Vaisala GroundCast.



Technical data

Measurement performance

Air temperature	
Measurement range	−40 ... +70 °C (−40 ... +158 °F)
Measurement accuracy	±0.15 °C (0.27 °F) at 0 °C (32 °F) ±0.25 °C (0.45 °F) over full range
Relative humidity	
Measurement range	0 ... 100 %RH
Measurement accuracy	±1.5 % at 0 °C (32 °F) / <90 %RH ±3.5 % over full range
Surface temperature (optional)	
Measurement range	−40 ... +70 °C (−40 ... +158 °F)
Measurement accuracy [1]	±0.5 °C (0.9 °F) at 0 °C (32 °F) [2] ±1 °C (1.8 °F) over −20 ... +60 °C (−4 ... +140 °F)

1) *Accuracy specification of used infrared component manufacturer in stable laboratory conditions. In real outdoor conditions, additional errors may include nighttime cold sky reflections and sunlight-based large temperature differences between sensor and road.*
2) *Accuracy is valid if ambient temperature is similar for road and sensor.*

Operating environment

Operating temperature	−40 ... +70 °C (−40 ... +158 °F)
Storage temperature [1]	Max. +30 °C (+86 °F)
Operating humidity	0 ... 100 %RH
IP rating	IP55

1) *Recommendation from the battery manufacturer.*

Communication and data collection

Communication standard	Narrowband IoT (NB-IoT)
SIM card type	Micro-SIM (3ff), provided by Vaisala
Local connection for sensor setup	NFC and Bluetooth
Mobile application for sensor setup	Vaisala Cast Connect (for iPhone and Android phone)
Data message interval	Every 10 minutes
Data storage location	Vaisala cloud
Data access options	Vaisala Wx Horizon UI and API Vaisala RoadDSS® UI

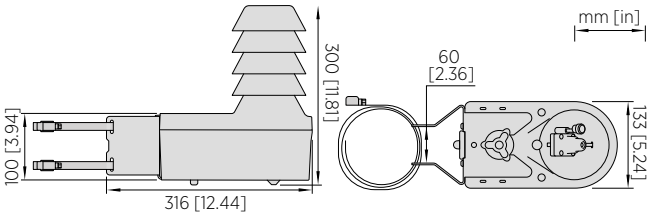
TempCast models

TempCast for air temperature, relative humidity, and surface temperature measurement	FMP103
TempCast for air temperature and relative humidity measurement	FMP102

Mechanical specifications

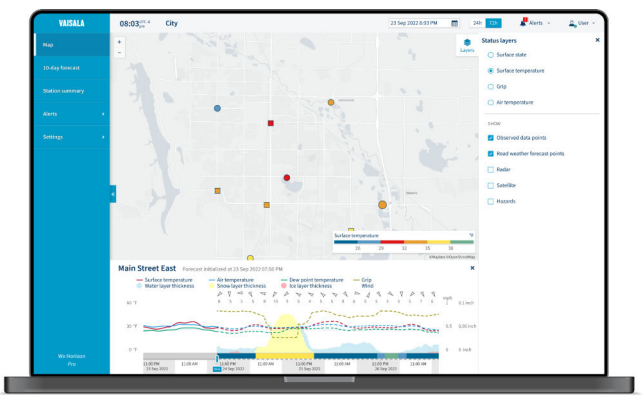
Sensor material	Glass fiber reinforced polycarbonate
Installation bracket material	AISI 316 stainless steel
Weight	Sensor 1.4 kg (3.1 lb) Bracket 0.6 kg (1.3 lb)
Battery type	Lithium-thionyl chloride
Battery lithium metal content	7.6 g (0.017 lb) per sensor [1]
Installation with standard mounting bracket	For pole masts with diameter 60 ... 420 mm (2.36 ... 16.54 in)
Installation with optional mounting adapter	For diagonal and horizontal structures with diameter 25 ... 400 mm (1.00 ... 15.75 in)

1) *Sensor includes 2 removable batteries, 3.8 g (0.008 lb) each.*

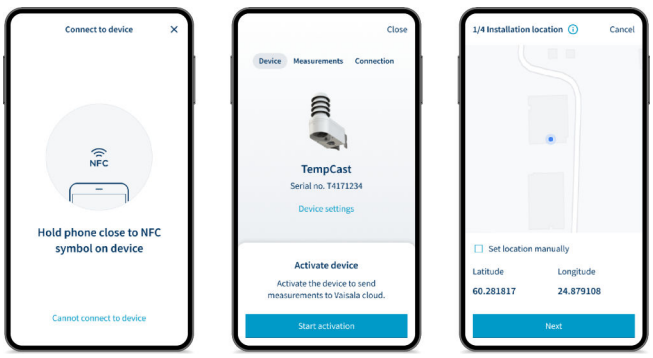


Compliance

EU directives and regulations	RED, RoHS
Electromagnetic compatibility (EMC)	EN 301 489-1, -17, -52 FCC part 15 B, Class B ICES-3 / NMB-3 (Class B)
Radio compatibility	EN 301 908-1 EN 300 328 FCC 47 Part 22/24/27/90 ISED RSS-130, RSS-132, RSS-133, RSS-139
Radio acceptance	FCC ID: 2AO39-FMP100 IC ID: 23830-FMP100
Safety	IEC 62368-1 RF exposure: FCC 47 CFR Part 2.1091, ISED RSS-102, EN 62311, 1999/519/EC
Cold	IEC 60068-2-1
Dry heat	IEC 60068-2-2
Vibration (sinusoidal)	IEC 60068-2-6
Vibration (random)	IEC 60068-2-64
Change of temperature	IEC 60068-2-14
Shock	IEC 60068-2-27
Damp heat, cyclic	IEC 60068-2-30
Damp heat	IEC 60068-2-78
Compliance marks	CE, FCC, ICES, RCM, UKCA



Sensor data visualization in Vaisala Wx Horizon



Vaisala Cast Connect mobile application

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www.vaisala.com

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