



SIEMENS
Ingenuity for life

Controlguide CTmobile

Energy self-sufficient position finding
and status monitoring

[siemens.com/mobility](https://www.siemens.com/mobility)

Key system features

- Vehicle locating by GNSS (Global Navigation Satellite System) as the basis for vehicle monitoring and optimum vehicle resource management
- Data transmission via existing nationwide mobile networks as text messages or via a GPRS (General Packet Radio Service) link and also via LTE CAT M1 in the future
- Evaluation of events depending on time and location
- Recording and logging of sensor data
- Continuous status monitoring of cars and cargo
- Cyclical GSM log-in for the adoption of parameters via mobile networks
- Cyclical transmission of message data (parameterizable cycle times) via mobile networks
- Time-controlled transmission of message data (parameterizable times)
- Event-controlled transmission of message data (parameterizable event sources)
- Internal sensors for the detection of shunting impacts and movement/standstill
- Service/diagnostic interface via short-distance radio
- Future-proof due to the possibility of remote firmware updates via mobile networks



Controlguide CTmobile

Energy self-sufficient communications in freight trains

As a result of using innovative freight cars, both the future and the growth of rail freight transport will be determined by increased efficiency, safety and transparency.

The "Controlguide CTmobile TSM (CT – Comprehensive Telematics, TSM – Train State Monitoring)" concept developed by Siemens for the wireless transmission of sensor data in freight trains ensures that freight cars are deployed cost-effectively by means of optimum vehicle resource management and transport monitoring.

The Controlguide CTmobile boxes fitted to each car also enable communications throughout the train. This means that, for example, the car sequence can be monitored or status information for the individual cars can be transmitted. This data can be sent directly to the driver.

Benefits

Avoidance of unnecessary car dwell times

Optimization of vehicle resource management

Early detection of out-of-course running

Simple installation on each car due to wireless data transmission and energy self-sufficient operation

Increased safety due to train integrity monitoring as a driver advisory system

Continuous status monitoring of cars

Automatic recording of running performance

Support and optimization of vehicle maintenance

Directly accessible from each workplace and many mobile devices

Simple integration into existing vehicle resource management systems



Wireless status monitoring by Controlguide CTsensor

Controlguide CTsensor records different status aspects of the car and establishes specific measured values. The measured values are transmitted from the Controlguide CTsensor modules via short-distance radio to Controlguide CTmobile and evaluated there in terms of time and location. If deviations from the expected values are detected, an appropriate message can be generated and sent to Controlguide CTcentral.

Depending on the vehicle type and the selected Controlguide CTsensor module, the following measured values can be recorded:

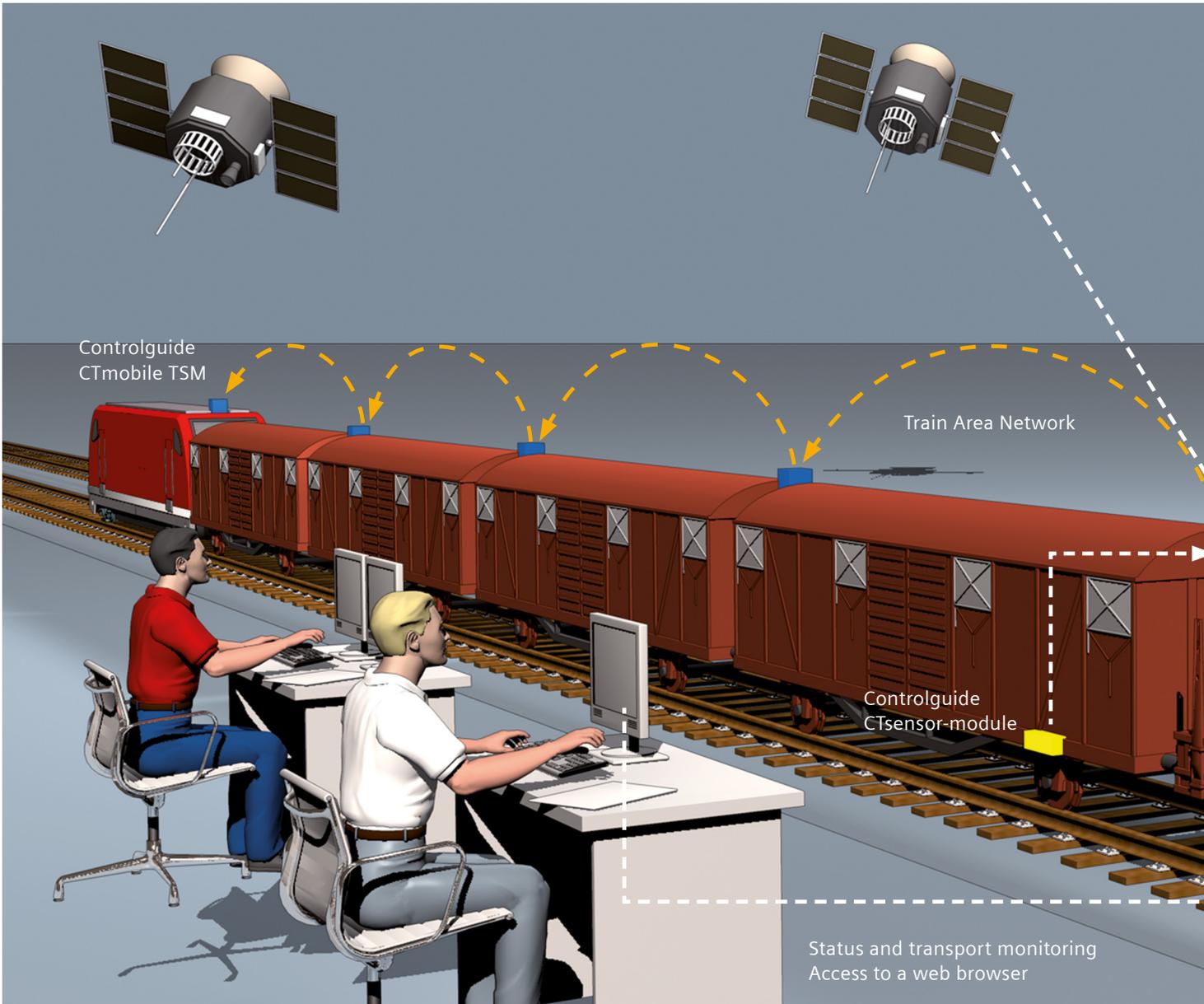
- temperatures
- pressures
- humidity
- loading and filling statuses
- door opening statuses
- lever positions
- hinged-cover positions

Administration and visualization by Controlguide CTcentral

Controlguide CTcentral is the data hub where all messages from the cars are received, stored in a database and processed for access via a web frontend.

You can use Controlguide CTcentral to

- administer and parameterize the Controlguide CTmobile telematics boxes and the wireless Controlguide CTsensor modules
- store users and access rights have the positions of cars displayed evaluate status and detection messages
- include new stations, loading points, etc., for transport monitoring (geo-fencing)



You can parameterize the Controlguide CTmobile telematics boxes either individually or in groups and define up to five daily recurring times for position finding.

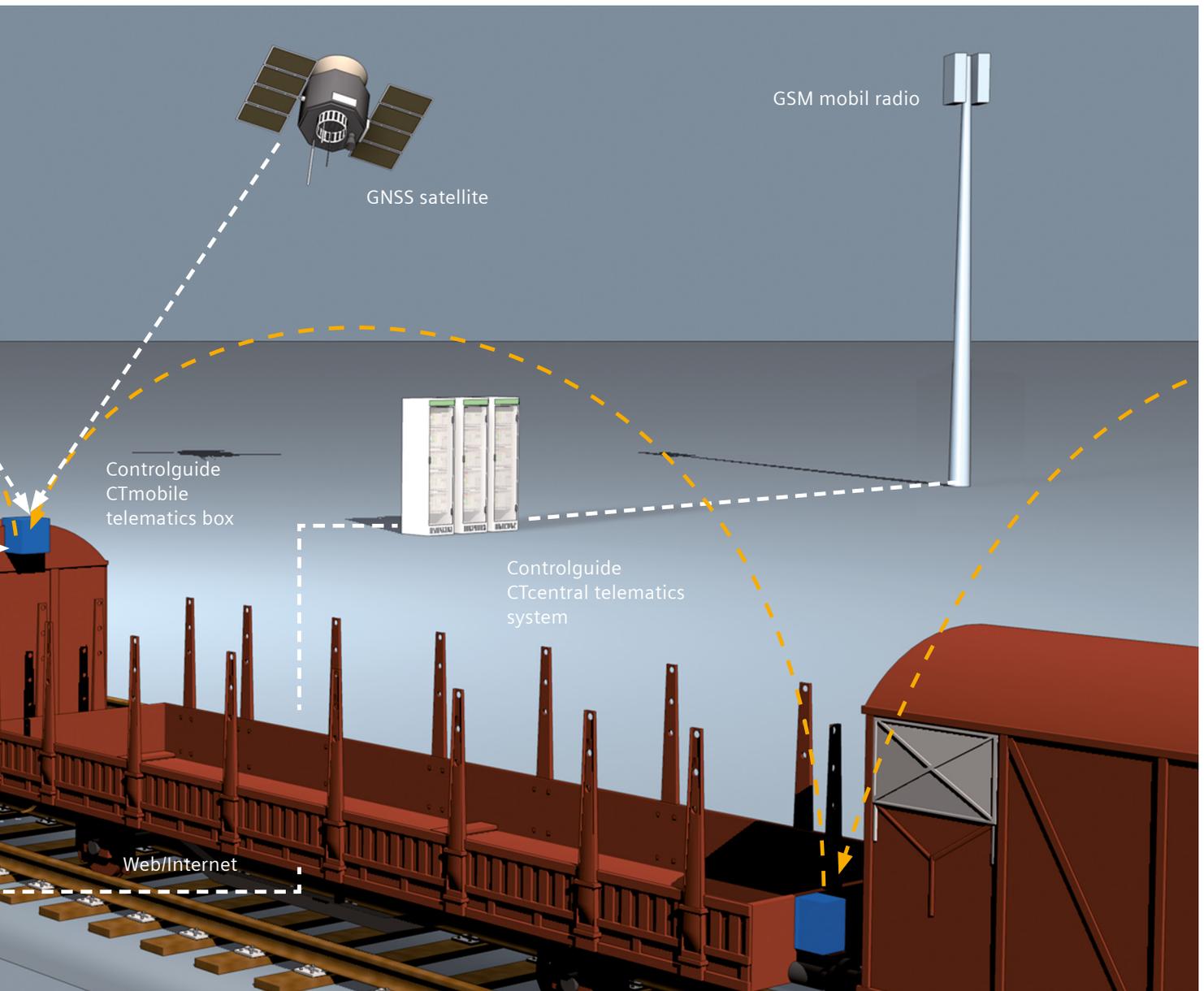
In addition, you can parameterize cyclical position finding (at intervals from five minutes up to 24 hours). You can also define the limit values for the sensors.

The Controlguide CTcentral web application is accessed in encrypted form directly from your web browser via the internet. An additional software package is not required on your PC.

In short, the Controlguide CTmobile telematics systems provides you with near-instant information about departure and arrival at transport-related configurable locations (geofencing function) and offers you with Controlguide CTsensor an up-to-the-minute overview of your vehicle fleet.



Controlguide CTsensor underneath a freight car



Controlguide CTmobile on-board telematics box

- Dimensions:
approx. 130 mm x 80 mm x 50 mm
- Weight: approx. 400 g
- IP rating: IP69K
Temperature range: $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$
- Integrated power supply: solar power supply with energy storage
- Integrated GNSS receiver for position finding
- Integrated sensors for the detection of standstill, movement, shunting impacts, loading impacts and temperature
- Integrated GSM/GPRS (GPS, GLONASS, Galileo, Beidou) module for remote data transmission
- Integrated short-distance radio for the transmission of sensor data and for communication with other telematics devices in the trainset
- All antennas integrated into the housing

Optional Controlguide CTsensor vehicle sensors

- Integrated power supply
- Integrated short-distance radio for the transmission of sensor data
- CTmobile und CTsensor ITSS Interface 2 ready (communication between telematics device and sensors)

Controlguide CTcentral telematics system

- Multitenant web application
- Full-graphics user interface, capable of running on standard web browsers
- Interface to enterprise resource planning (ERP) systems compatible with ITSS (industry platform for telematics and sensors in rail freight transport)

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