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ac

# connect:ac

access control

**The electronic key:** With connect:ac access control, you can control access to your fleet. You always know who drove what vehicle and when.



You always know who is behind the wheel of which vehicle because the drivers have to identify themselves by means of a PIN or using an RFID chip. With connect:ac access control, you make using your fleet safer and more transparent.

## The benefits at a glance:

- **Unauthorized use** of vehicles no longer possible
- **Access can be controlled** based on the person, a period of validity, driving permission, and the vehicle
- Evidence of **vehicle usage** available anytime
- Driver-specific **vehicle settings** e.g. speed throttler
- **Loss of keys** no longer possible
- **Drivers are more aware** of how they use vehicles
- Contactless **identification** by means of an RFID transponder or PIN entry via a numeric keypad
- Also available as a **retrofit solution**

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# connect:ac

pre-operational check


**Electronic pre-shift check:** The connect:ac pre-operational check and associated smartphone app simplify the vehicle check before every shift.



The electronic vehicle check enables you to ensure that the vehicle can only be started when the check has been carried out and the vehicle is fully operational. The connect:ac pre-operational check improves safety on your premises and keeps up up-to-date on the condition of your vehicles.

The benefits at a glance:

- **Increased operational safety** because vehicles can only start after a check has been carried out
- **Simplified pre-shift check** with digital test results
- Vehicle condition is **regularly inspected**
- **Automatic email report** in real time in the event of vehicle damage or irregularities
- **Photographic record** of vehicle damage or irregularities possible
- **Great flexibility** because the fleet manager can freely define questions in the checklist configurator
- **Recording** of all defined questions and answers
- App works on all **mobile Android devices** with NFC technology
- Available as **retrofit solution**

 Dashboard Organisation Administration Reports Settings dt

# connect:dt

## crash detection


**The electronic damage monitor:** connect:dt crash detection notifies you of collisions and major shocks incurred by the vehicle. The cause of damage or the person behind the damage can be determined.



Was there an accident? Is there somewhere in the company grounds that's uneven? Is a driver not driving cautiously enough? With connect:dt crash detection, the time and magnitude of major shocks that may result in damage to a vehicle are logged.

The benefits at a glance:

- **Identification of dangerous spots** or damaged surfaces in the company grounds
- Identification of the driver in the case of intentional **misuse** or rough **driving**
- **Reduction of damage** caused by inappropriate treatment
- Reduction in the **cost of repairs**
- Early **detection of vehicle damage**
- **Automatic speed throttling** can be set for the driver
- Individually adjustable **recording threshold**
- **Identification of the driver** in the case of an accident or damage to a building
- Drivers are more aware of how they use vehicles
- Greater safety in the **company grounds**
- Also available as a **retrofit solution**

 Dashboard Organisation Administration Reports SettingsThe "dt" logo, consisting of the letters "dt" in white on a dark blue square background.

# connect:dt

## operating hours



**The digital driver's logbook:** With connect:dt operating hours, you document your vehicles' hours in service. At all times, you know how long your forklifts or warehouse equipment have been in use.

Is a vehicle rarely used? Is a vehicle at risk of exceeding the hours in service as agreed with the leasing partner? With connect:dt operating hours, your vehicles' hours in service are regularly recorded – giving you an overview of how your fleet is used at all times.

## The benefits at a glance:

- **Hours in service** are automatically logged and transmitted
- Individually adjustable **reading interval**
- **No workload** caused by manually logging hours in service
- **No operational disruptions**
- Greater **transparency**
- Improved **usage planning** and optimized fleet capacity utilization
- Maintenance intervals are **easier to plan**
- Unnecessary **vehicle outages** are avoided
- Early **identification** of bottlenecks
- Warning if a **number of hours in service** is exceeded
- **Reduced overuse** of vehicles
- **Reports available** for individual vehicles
- **Data transfer** via cell phone network, no additional infrastructure needed
- Also available as a **retrofit solution**



 Dashboard Organisation Administration Reports SettingsThe logo consists of the lowercase letters "dt" in white, centered within a solid dark blue square.

# connect:dt

## trouble codes

**The automated error code transmitter:** connect:dt trouble codes notifies you of vehicle errors before more serious damage can occur.



Does a wearing part need to be replaced? Does a vehicle need to be taken out of service to avoid more severe damage? With connect:dt trouble codes, you are provided with qualified information regarding vehicle errors – including errors that do not immediately limit the vehicle’s functionality or performance.

The benefits at a glance:

- **Early detection** of malfunctions or damage
- **Makes preventative maintenance possible**
- **Reduced vehicle outages**
- Improved vehicle **availability**
- Optimized **service processes** with shorter repair times
- **Transparency** regarding the sources of errors
- Automatic notification of the **service organization** is possible
- Automatic **e-mail reports**
- Also available as a **retrofit solution**

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an

# connect:an

## usage analysis

**The digital usage analyzer:** With connect:an usage analysis, you can keep an eye on just how your vehicles are used. You are constantly kept up to date on your vehicles' capacity utilisation.



What is the split between a vehicle traveling and lifting items? Does its usage tally with the vehicle's performance profile? With connect:an usage analysis, you can examine your fleet's capacity utilisation in detail, keeping you abreast of vehicle usage, idle times, and maintenance at all times.

## The benefits at a glance:

- An overview of vehicle **availability**
- Shows the actual **fleet performance**
- Easy **identification** of underused vehicles
- **Potential for improvement** within the fleet is brought to your attention
- **Buying new vehicles** or using replacement vehicles can be avoided
- Fleet usage **transparency**
- Inferences about **driver behavior** are made possible
- **Data transmission** possible via various communication technologies

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an

# connect:an

## battery management

**The digital battery manager:** With connect:an battery management, you can monitor your vehicles' batteries. You then always know whether batteries are being handled correctly.



Is a battery being serviced correctly? Are batteries often charged when it's too soon or already too late? The state of a battery is assessed on the basis of the parameters recorded and incorrect usage is identified. With connect:an battery management, you can keep your fleet's power cells in good shape.

The benefits at a glance:

- **Avoid damage and loss of performance** caused by incorrect charging or servicing
- **Battery parameters** presented transparently at a glance
- **Incorrect usage** can be ascribed to the driver(s) in question
- Increased **vehicle availability**
- Notification when **limits are reached**
- **Identification** of rarely used or overused batteries
- Avoid unnecessary **maintenance or acquisition costs**
- **Energy consumption** made clearly quantifiable
- **Raises drivers' awareness of** energy management

## GPS based digital tracking of trucks all over the world

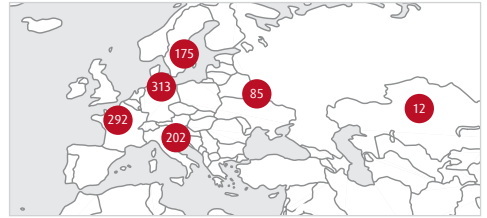
The Linde module connect:zi **Truck Mapping** delivers GPS-based vehicle tracking in outdoor applications and leverages fleet monitoring opportunities. On the basis of the Linde connect:portal sales organizations and network partners can easily detect and track the position of any truck to enhance service and availability.

### Sample Applications

Worldwide monitoring of fleets or single trucks



Scale-down to dedicated areas or countries



Company-wide tracking



Accurate position tracking



### Customer Benefits



#### Transparency

- Worldwide monitoring of fleets and trucks in outdoor applications
- Scale-down to defined areas or countries
- Company-wide tracking of trucks



#### Accuracy

- Accurate GPS based position tracking
- Vehicle position tracking with +/- 5 meter accuracy
- Visualization of trucks on the basis of Google Maps and Google Satellite view



#### Service efficiency

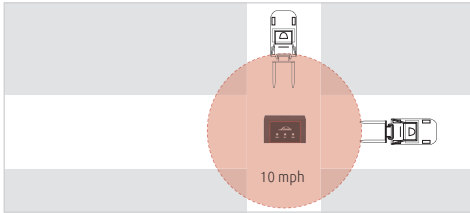
- Easy tracking of truck positions for service technicians
- Reduced times for searching trucks (in case of repair or maintenance issues)
- Lays the technical foundation for remote access of the truck

## Digital zone configuration and management – enhanced safety for people, assets and environment

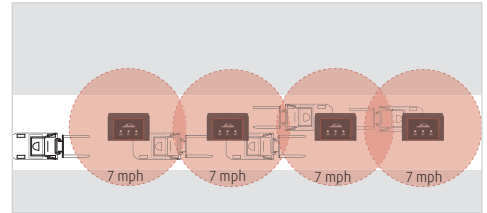
The Linde module connect:zi **Speed Zoning** is a further step towards enhanced safety in our customers' environment. The module allows end-customers to define safety zones on the basis of the fleet management Linde connect.

### Sample Applications

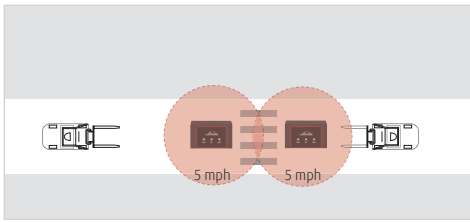
At crossings



In narrow roads



Near pedestrian ways



In wide areas



● zone with reduced speed

### Customer Benefits



**Safety**

- Assignment of multiple speed limits in the same warehouse or hall layout
- Protection of pedestrians
- Protection of narrow roads and crossings
- Wide area protection



**User-friendliness**

- Simple upload processes for warehouse layouts
- Self-explanatory configuration and set-up of speed zones
- Easy adjustment process based on an easy user interface in Linde connect:desk



**Accuracy**

- Precise adjustment of speed limits to defined zones
- Accuracy of 15 cm
- Precise reduction of speed as soon as a truck enters a zone



**Technology**

- UWB technology is the technical foundation for indoor localization
- UWB technology allows signal transmission through walls and shelves<sup>1</sup>

<sup>1</sup> Valid for typical intralogistics facilities, examination within the scope of consulting.