- Product description
- Web Application
- Sample Customer Reports
- Facts and Benefits
DB Schenker Logistics is a leading provider of international transport and logistics services

Integrated transport and logistics services
- Operation of **global networks**
- Expertise in specific industries, e.g. automotive, electronics, consumer goods
- Strong brand with global **door-to-door service**

### DB Schenker Logistics Service Portfolio

<table>
<thead>
<tr>
<th>No.</th>
<th>Service Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>European Land transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 800 offices in 36 countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 70 million consignments p.a.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- approx. 32,000 regular services per week</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Air Freight</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- More than 700 sites worldwide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 800 freight flights p.a.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 1 million tons airfreight volume p.a.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ocean Freight</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 1.4 million TEU(^1) ocean freight volume p.a.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Contract Logistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 500 offices in more than 50 countries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- More than 4 million m(^2) warehousing space</td>
<td></td>
</tr>
</tbody>
</table>

---

\(^1\) TEU = Twenty-foot Equivalent Unit
Delivering Solutions - DB Schenker offers customers integrated logistics chains from a single source.

Door-to-door solutions, tracking

Supply chain management

Key account management

1 Value added services
DB Schenker, Christopher Regenhardt
The following parameters are monitored by DB SCHENKERsmartbox – worldwide – 24 hours a day – 365 days a year:

- Geographical position (via Global Positioning System – GPS)
- Temperature inside the container
- Humidity inside the container
- Light influx
- Tilt level
- G-force impact
- Door status (open - closed)
- Movement inside the container

The collected data are transmitted via mobile communication networks (GSM) to the web portal:

www.dbschenkersmartbox.com
Further related services and features are:

- Reverse Logistics of device via air freight (worldwide network)
- Consulting and Business Case analysis
- Customized reports and statistics
- System accessible via Customer Information System
- Marketing support and press announcements
- Optional security center solution
DB SCHENKERmarineparts
Reverse Logistics

* Hubs
+150 locations worldwide
<table>
<thead>
<tr>
<th>Evaluated Technologies</th>
<th>Tracking</th>
<th>Visibility</th>
<th>Monitoring and Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive RFID and reader</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>E-Seal</td>
<td>(✓)</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Active RFID + Door sensor</td>
<td>✓</td>
<td>(✓)</td>
<td>(✓)</td>
</tr>
<tr>
<td>GPS sensor suite</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

* Depending on coverage of mobile and/or satellite network

- **Checkpoint based**
  - ✓ possible
  - (✓) limited functionality
  - ✗ not possible

* DB SCHENKER smartbox

---

DB Schenker, Christopher Regenhardt
DB SCHENKER smartbox
Device evolution

Initial Prototypes
2001-2003

- Solar cells
- Separate inside and outside

Generation CMD410
2004-2005

- 4 parts (Module, Battery, Antenna, Door magnet)
- Cables required
- Tested in “Operations Safe Commerce”

Generation CMD420
2006-2009

- Quick setup
- Cables visible, but not in the way
- Just 2 parts (separate door magnet required)
- Light weight
- Small size

Generation CMD500
Launch Q4/2009

- No visible cables
- Just one part
- Extremely quick setup
- Extremely light weight
- Extremely small size
- High functionality based on 4-year joint DB SCHENKERSmartbox experience
DB SCHENKERSmartbox
The current device generation

Inside view

Main module with all sensors

Outside view

GPS / GPRS Antenna
DB SCHENKER

smartbox

Agenda

- Product description
- Web Application
- Sample Customer Reports
- Facts and Benefits
DB SCHENKERSmartbox
Customer Information System (CIS)

With a single click within the Customer Information System you will be able to access www.dbschenkersmartbox.com
### DB SCHENKERsmartbox

Customer Information System (CIS)

<table>
<thead>
<tr>
<th>Container</th>
<th>Security Parameters</th>
<th>Device Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>353358014840867</td>
<td>Door Closed</td>
<td>Active</td>
</tr>
<tr>
<td>Description</td>
<td>No Movement Inside</td>
<td>GPRS Network Available</td>
</tr>
<tr>
<td>CTR 16_PONU4957212_500_R-1001-0010</td>
<td>No Light</td>
<td>Normal Power</td>
</tr>
<tr>
<td>TRIP</td>
<td>Inside Geo-Zone</td>
<td>Mounted</td>
</tr>
<tr>
<td>Name: Trip2</td>
<td>Environmental Parameters</td>
<td>Accelerometer Parameters</td>
</tr>
<tr>
<td>Date: 19.02.2010 19:24:29 to Current time (UTC)</td>
<td>Temperature Normal</td>
<td>No Impact</td>
</tr>
<tr>
<td>Coordinates</td>
<td>Humidity Normal</td>
<td>No Vibration</td>
</tr>
<tr>
<td>53.5979°N x 8.31722°E</td>
<td>GPS Normal</td>
<td>No Tilt</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Battery state</td>
<td>94%</td>
</tr>
<tr>
<td>44m</td>
<td>Last communication time</td>
<td>02.03.2010 10:09:51 (UTC)</td>
</tr>
<tr>
<td>Location (town,country,distance)</td>
<td>n/a</td>
<td>24 hours / 7 days a week</td>
</tr>
<tr>
<td>Temperature</td>
<td>4.4°C</td>
<td>Bremen</td>
</tr>
<tr>
<td>Humidity</td>
<td>55.9%</td>
<td>Germany</td>
</tr>
<tr>
<td>Battery state</td>
<td>94%</td>
<td>North Germany</td>
</tr>
</tbody>
</table>

DB Schenker, Christopher Regenhardt
DB SCHENKERSmartbox

Agenda

- Product description
- Web Application
- Sample Customer Reports
- Facts and Benefits
GPS map of SXXJ0004200 status (Status on Sept 25th)

<table>
<thead>
<tr>
<th>Container</th>
<th>Description</th>
<th>TRIP</th>
<th>Coordinates</th>
<th>Accuracy</th>
<th>Location (town, country, distance)</th>
<th>Temperature</th>
<th>Humidity</th>
<th>Battery state</th>
<th>Last communication time</th>
</tr>
</thead>
<tbody>
<tr>
<td>011691001152224</td>
<td>NYKU8465472</td>
<td>Name: Trip1 Date: from 24.05.2010 12:57:35 to Current time (UTC)</td>
<td>50.5859, N x 1.05243, W</td>
<td>31m</td>
<td>Sandown, United Kingdom, 9.90854km</td>
<td>16.2°C</td>
<td>84%</td>
<td>94%</td>
<td>25.09.2010 07:27:55 (UTC)</td>
</tr>
</tbody>
</table>

### Security Parameters
- Door Closed: Active
- No Movement: Inside
- No Light
- Inside Sensor Zone: Mounted

### Device Parameters
- GPS Mobile: Available
- Normal Power
- Mounted

### Environmental Parameters
- Temperature Normal
- No Impact
- No Vibration
- GPS Normal
- No Tilt
GPS route of SXXJ0004200 (3/5)

Cell-ID location (not accurate because container is not under open sky (most likely inside building))

Door Closed on Sept 21st 2010
Total travelled distance of container is 1051.5km
Number of GPS points is 49

NYKU8465472
22.09.2010 19:21:02 (UTC)
53.8809,N x 9.17349,E / 16m
The distance from the last point is 0.0km
The distance from the first point is 165.7km
12°C
Total travelled distance of container is 1051.5km
Number of GPS points is 49

NYKU8465472
26.09.2010 19:31:44 (UTC)
50.9056,N x 1.45603,W / 5m
The distance from the last point is 0.0km
The distance from the first point is 1051.5km
13.1°C
Temperature data of SXXJ0004200

Temperature history for container ID: 011691001152324. The time format is (UTC)
Humidity data of SXXJ0004200

Humidity history for container ID: 011691001152324. The time format is (UTC).
G-force data for SXXJ0004200

Loading to vessel in Hamburg

Door closed
In-depth analysis of G-force waveform of impact 50 milliseconds before and 50 milliseconds after the main impacts
DB SCHENKER

Agenda

- Product description
- Web Application
- Sample Customer Reports
- Facts and Benefits
Possible storage position under deck leaves no view to the satellite networks for GPS data acquisition.

Possible location of container on vessel – No chance to get satellite GPS data.

http://www.containerhandbuch.de
DB Schenker, Christopher Regenhardt
## Smartbox general functionality overview and requirements during different steps of the supply chain

<table>
<thead>
<tr>
<th>GPS position</th>
<th>Security status(^1)</th>
<th>Cargo status(^2)</th>
<th>General Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓ GPS needs clear view to sky</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>o No GPS available inside of building</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>o No GPS available if container stored under deck on vessel</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓ Data transfer needs GPRS network(^3)</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>o No communication in open water</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>o No communication in countries with no GPRS network</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓ All security and cargo status sensors are active during journey(^4)</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>✓</td>
<td>o Data is stored and sent during first 12 hour update in area with available GPRS network</td>
</tr>
</tbody>
</table>

1) Door open/closed, Light, Motion inside, Mounting  
2) Temperature, Humidity, Impact/Shock, Vibration, Tilt  
3) Satellite communication available upon request for data transfer at almost every point in the world incl. open sea  
4) Full battery status needed
DB SCHENKER smartbox

Standard schedule of sensor data acquisition

Individual settings possible based on customer request

- **Security**:
  - Permanent check of door, light, motion sensors
  - Status report every 12 hours

- **Temp./Humidity**: Hourly recording of data
  - Permanent threshold check

- **Impact/Tilt/Vibration**: Max. value recorded every 6 hours
  - Permanent threshold check

- **GPS**: Position determined every 6 hours and 24/7 during alert if clear view to the sky

- **Data transfer**: Data transferred every 12 hours and 24/7 during alert, if GPRS network available

---

DB Schenker, Christopher Regenhardt
DB SCHENKER smartbox
Innovative – Efficient – Secure

Innovation partners

Insurance companies
Ocean Freight Carriers

Customers
Universities (DB Schenker Lab)

Internal network

DB Schenker, Christopher Regenhardt
DB SCHENKERsmartbox Benefits

Transparency
- Highest level of transparency of the supply chain
- Monitoring of cargo conditions
- Increased lead time transparency
- GPS real time tracking via web (24/7…)

Savings
- Potential reduction of insurance premium
- Reduction of customer’s logistics costs

Security
- Protection against theft and terror

Strategic advantages
- Increased product- & data quality
- Innovation marketing
- Enhanced strategic process planning capabilities

Strong partner
- 4 years of product development
- Excellent integration experiences
- Global network of cooperation and innovation partners
- Easy and flexible installation procedures
- Worldwide available

DB Schenker: leader in sensor technology for ocean freight
Thank you for your attention!

Christopher Regenhardt
Corporate Product Management
Ocean Freight

Phone +49 201 8781-8243
Fax +49 201 8781-8472
Mobile +49 160 90558660
christopher.regenhardt@dbschenker.com

Schenker AG
Alfredstrasse 81
45130 Essen / Germany
www.dbschenker.com