Innovation@charge

Castellan AG

E-Powerload –
The system solution
for electromobilit

Castellan technology & design

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www.castellan-ag.com

CHARGING AND BILLING IN THE CAR PARK

Use the parking time to charge up
and pay conveniently.

Due to their existing infrastructure, car parks are well suited to the further expansion of electromobility. Both system solutions offered by car park operators (Convenient billing together with the Parking ticket) as and stand alone solutions from external providers (including energy providers or e-mobility service providers, billing e.g. via GSM network), can be integrated without a great deal of installation effort. Combined with the sophisticated Castellan-Software (system control, car park surveillance, billing) the operators always have a transparent overview of all the components connected to the system - regardless of the type and quantity of charging stations.

For installation in car parks and underground garages, we have developed the compact wall charging system, which is exclusively made with high quality components in Germany, and is impact, water and dust resistant. The E-Powerloads can be completely individualised in terms of colour, logo placement and design.

Even during development, we placed a great deal of importance on future oriented and extendible systems with high operating comfort. In practice, this is primarily expressed in intuitive operation and the most familiar sequences possible:

The car park customers take their parking ticket at the entrance as usual, register at the station, and use the parking time to charge up. Depending on whether it is a charging station provided by a car park operator, or a charging system operated by an external provider, payment for the electricity costs will be made together with the parking ticket or separately (e.g. Via RFID, GSM or mobile phone).

1

On entry
Take parking ticket

2

Look for parking
space and
e-charging station
Activate via
the ticket

3

Connect vehicle
to e-charging station
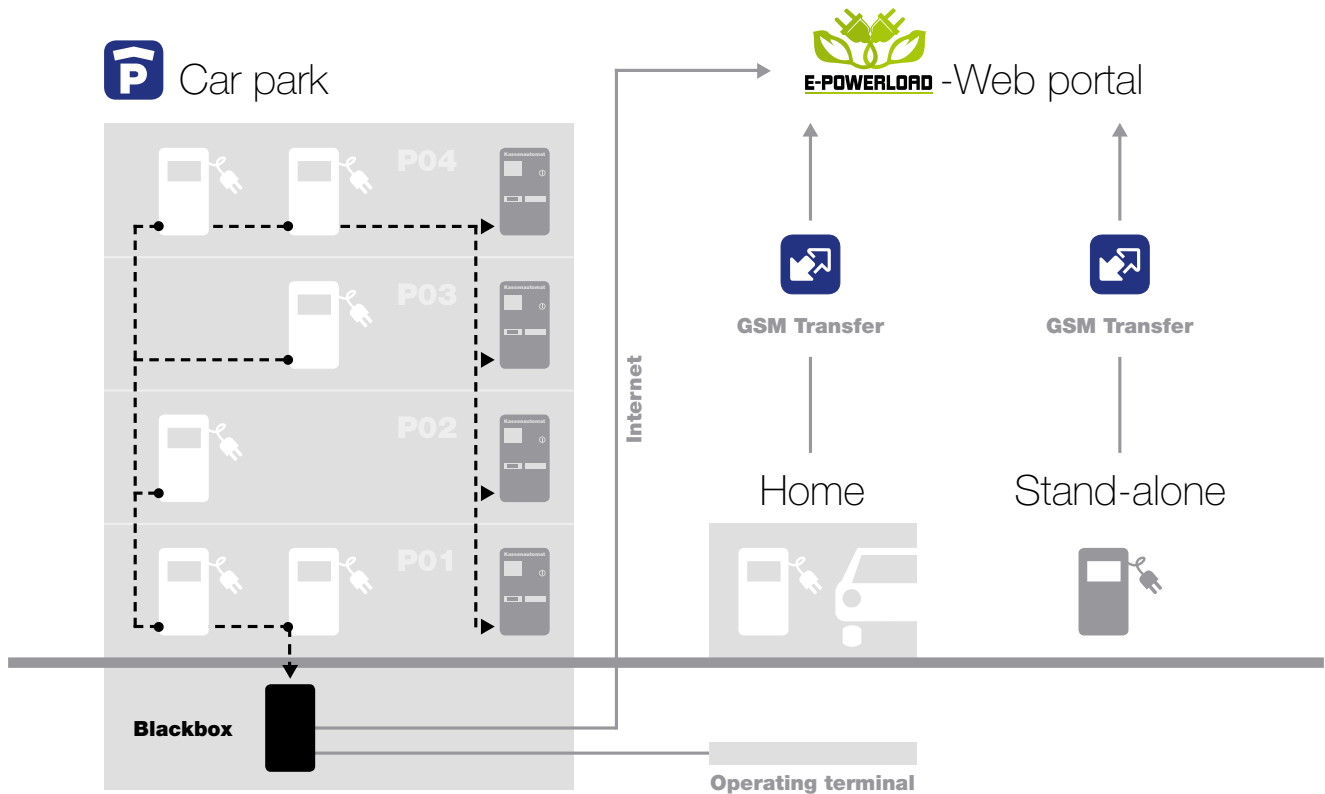(insert plug),
Select charging box
and current type

4

Charging
process

FUNCTIONING OF THE CHARGING SYSTEM

The next generation "E-Powerload"

P Car park

P04
P03
P02
P01

Blackbox

Internet

E-POWERLOAD -Web portal

GSM Transfer   GSM Transfer

Home   Stand-alone

Operating terminal

5

At the end of the
parking time (Ticket
in car park machine)
the charging process
will end

6

Data transfer at the
ticket machines via
network connection
(either Ethernet, WLAN,
dLAN or EDGE/UMTS/
LTE according to
customer wishes)

7

On request:
Print out of
parking and
electricity receipt

8

To exit
insert the paid
parking ticket into
the machine
as usual

BILLING SYSTEMS AND AREAS OF USE

SMS billing
Start the charging process with the help of your smartphone – you will be billed conveniently via your mobile provider. Or use our own SMS billing activation system. (Stand Alone).

Barcode
Barecode is one of the most common systems. Only lengthwise and crosswise are differentiated.

QR-Code
The QR-Code is suitable for scan processes and links directly to a web link, where corresponding information is stored.

Magnetic strips
These systems are often used in connection with car park ticket machines.

RFID 1
Start the charging process conveniently with your RFID card included in the scope of delivery. Billing occurs via the Castellan E-Load online portal.

RFID 2
Start the charging process for your e-vehicle with your trusted RFID Badge of your trusted RFID card. We use your existing technology and integrate it into our system. We take care of the bill - use our Castellan E-Load online portal. A customer RFID reader and a badge and/or card is required per charging station.

Car park 1: barrier free!
With our car parking solutions, your customers always have a charged vehicle. With the parking ticket obtained on entry, you can start the charging process conveniently at the charging station. This will be ended and billed directly via your existing parking ticket machines, before you leave the car park again with your fully charged vehicle.

Car park 2: Short term parker/ long term tenant
With our car parking solutions, your customers always have a charged vehicle. Short term parkers can conveniently start the charging process at the charging station, with the parking ticket obtained on entry to the car park. This will be ended and billed directly via your existing ticket machines. Thanks to RFID cards, long term tenants have the option to charge their vehicle, and have the incurred costs billed via the RFID module.

Ladenetz
ladenetz.de is a network of public utilities, whose charging stations you can use to fill up your car with electricity quickly and easily, using the "charging card" of your public utility. You can recognise the charging stations by the uniform ladenetz.de logo. You can also use the stations of ladenetz roaming partners. You can find all charging stations and further information at:
www.ladenetz.de

1 INTERFACE

1 CONTRACT

N PARTNER

Hubject

The business and IT platform of Hubject allows collaboration between various market participants in electromobility. The customers of the affiliated partners, receive access to all public charging stations that are connected to the platform, via just one contract, via eRoaming. Basically, there are two significant business roles, that a market participant can take on: the provision of charging poles and energy (charging station operator) or offering services such as traction current contracts (Elec-tromobility provider). It is also possible, for an affiliated partner to fulfil both roles. Furthermore, the proposal of the eRoaming platform is oriented towards fleet operators, OEMS and manufacturers of charging infrastructure systems. Therefore, apart from the charging stations of their own electromobility providers, the charging stations of other providers are also available to drivers of electric cars. So they receive the best possible service in an open market model for electromobility.
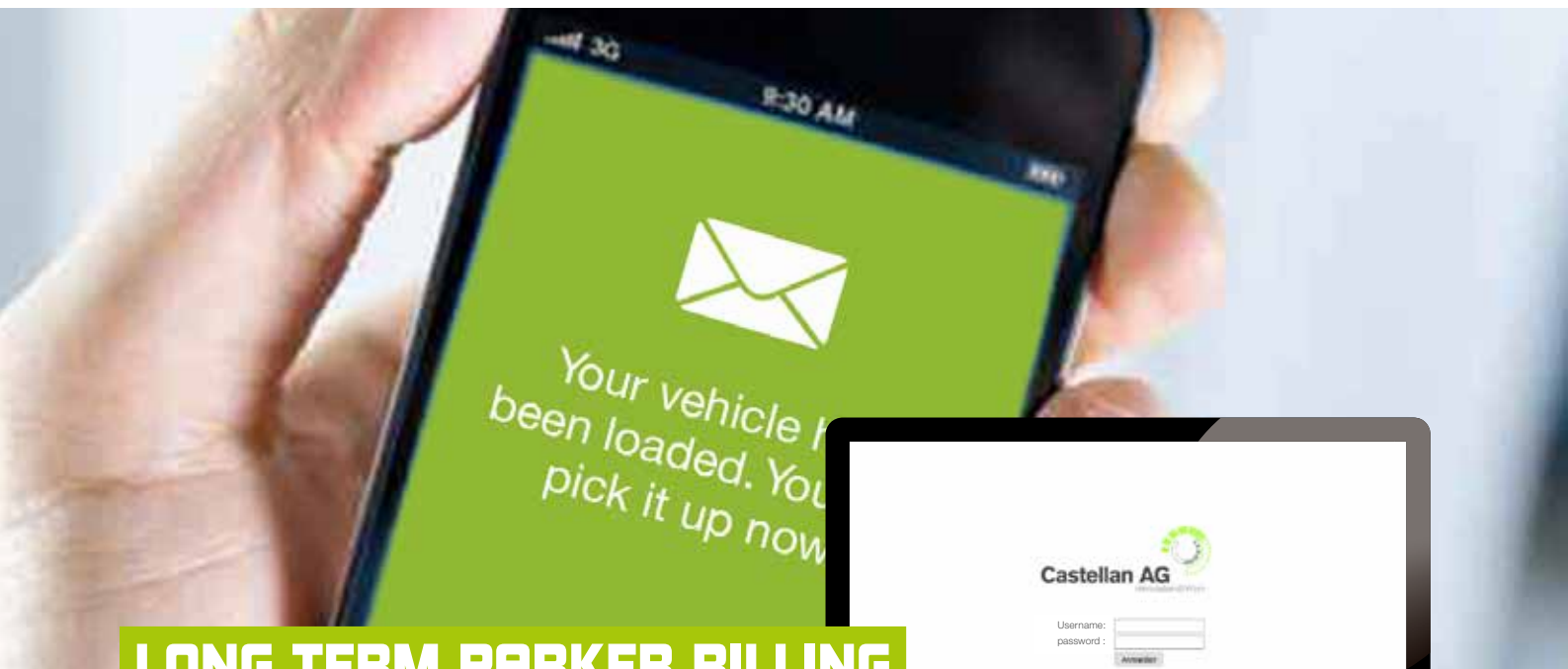

Text & graphics: hubject.com
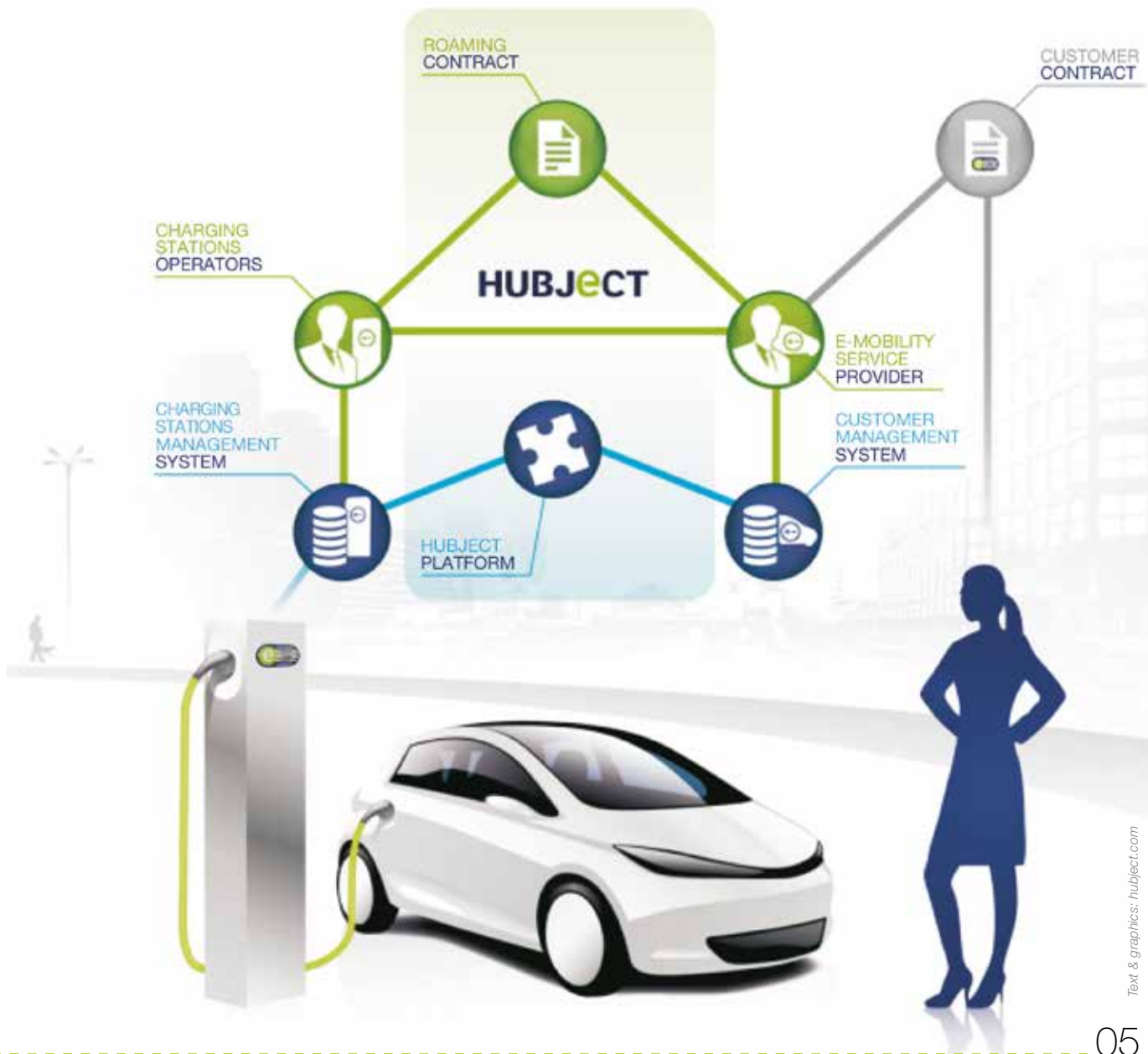
RETURN STATION FOR CAR RENTERS

> Notification of charging status of vehicle

> Load management

> Communication in image and sound

TECHNOLOGY AND DESIGN

> Barrierless

> Remote control

> Extendible

LONG TERM PARKER BILLING

1   Link in browser: http://www.castellan.ag/powerportal/

2   Log in with e-mail and password

POSSIBLE BILLING SYSTEMS AT A GLANCE.
However you want it: Convenient and individualised billing.

Cash
With a charging system for car parks, connected to the ticket machines, you pay the bill for the usage time of electricity charging, conveniently and as usual, together with your parking ticket.

Mobile phone
You can carry out identification and payment conveniently via your mobile phone. The usage billing Is added to the monthly bill of your mobile phone provider (only possible at charging stations with GSM module).

Money card (EC/credit)
Don't have any cash or don't have the right change to hand? No problem, most parking ticket machines accept money cards or EC cards for the payment of parking and electricity usage fees.

RFID card
An electronic legitimation card authorises the user to activate the charging system. Via the RFID module the users can be assigned and billed for individual charging processes. The RFID card is suitable for long term parkers and monthly billing customers.

Bar code
The charging process starts automatically by scanning the parking ticket at the charging pole. When scanning and paying for the ticket at the car park ticket machines, the charging will automatically end.

Pin code
The user receives access to the charging station, by entering a PIN that only they know, via a number pad or touch screen.

Car park ticket machine
Whether you are just parking, or charging your vehicle while parking: You pay the fee incurred (electricity usage and/or parking costs) as usual at the car park ticket machines.

Magnetic strips
Parking duration and electricity usage will be stored on the magnetic strips of the parking tickets. Charging process starts by scanning the magnetic strip at the charging pole, and ends with payment at the machines.

GSM data transfer
For home or stand alone charging systems: All data of the charging station (For example location, date, user, electricity usage) will be transferred to a server portal for user identification and billing.

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BILLING TEMPLATE

Total calculation January 2012 – Customer

Cost calculation

| EUR 1,00 | Standard |

Costs / kWh

| EUR 2,00 | internal price |
| EUR 1,50 | Flex price |

Rechnung drucken

Pole	Payment type	Uniform ID	Start	End	Quantity kWh
01728323176	RFID	2700B8DA6D	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176		2700B8DA6D	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176		2700B8DA6D	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176		2700B8DA6D	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176		2700B8DA6D	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	Cash/Money card	Return Machines	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	User account	Log-in name/E-mail/UserID	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	Ticket machine	Return Machines	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	2D Bar code	04560749687056145670680465	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	PIN	04568	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	Bar code	12345789	01.01.10T00:00:04	01.01.10T00:09:14	0,237
01728323176	Mobile	15152429463	01.01.10T00:00:04	01.01.10T00:09:14	0,237

Total amount	EUR 2,607
Bill Standard	EUR 2,61
Bill Internal price	EUR 5,21
Bill Flex price	EUR 3,91

SEQUENCE OF THE PAYMENT PROCESS

Print bill ❯ **Export bill** ❯ **Data to parking system** ❯ **Delete data**

DIRECT CUSTOMER CONTACT

REMOTE CONTROL

EVALUATION AND
TRANSFER OF
CONSUMPTION
AND BILLING

WARNING IN
THE CASE OF
BREAKDOWN

SELF TEST
AND REMOTE
MAINTENANCE

24/7
ROUND THE CLOCK SERVICE

ENABLES DIRECT
COMMUNICATIONS WITH
THE CUSTOMER AND
PARKING SUPER VISION

ENSURES FUNCTION

UNINTERRUPTED QUALITY
MANAGEMENT AND DOCUMENTATION

BAUSTEINPRINZIP
ENDLOS ERWEITERBAR
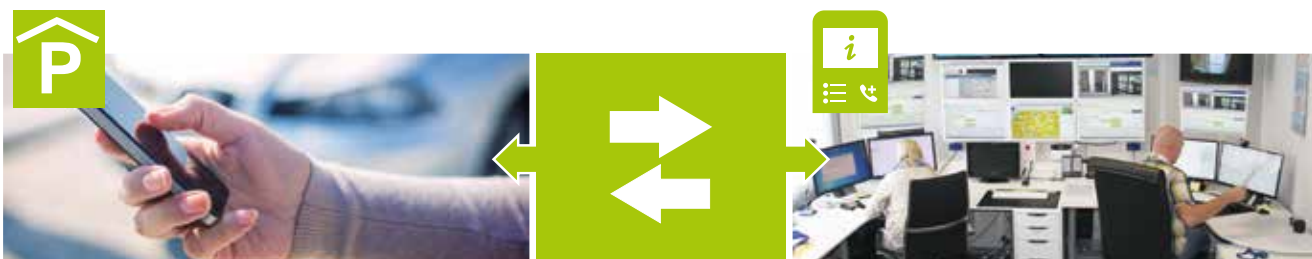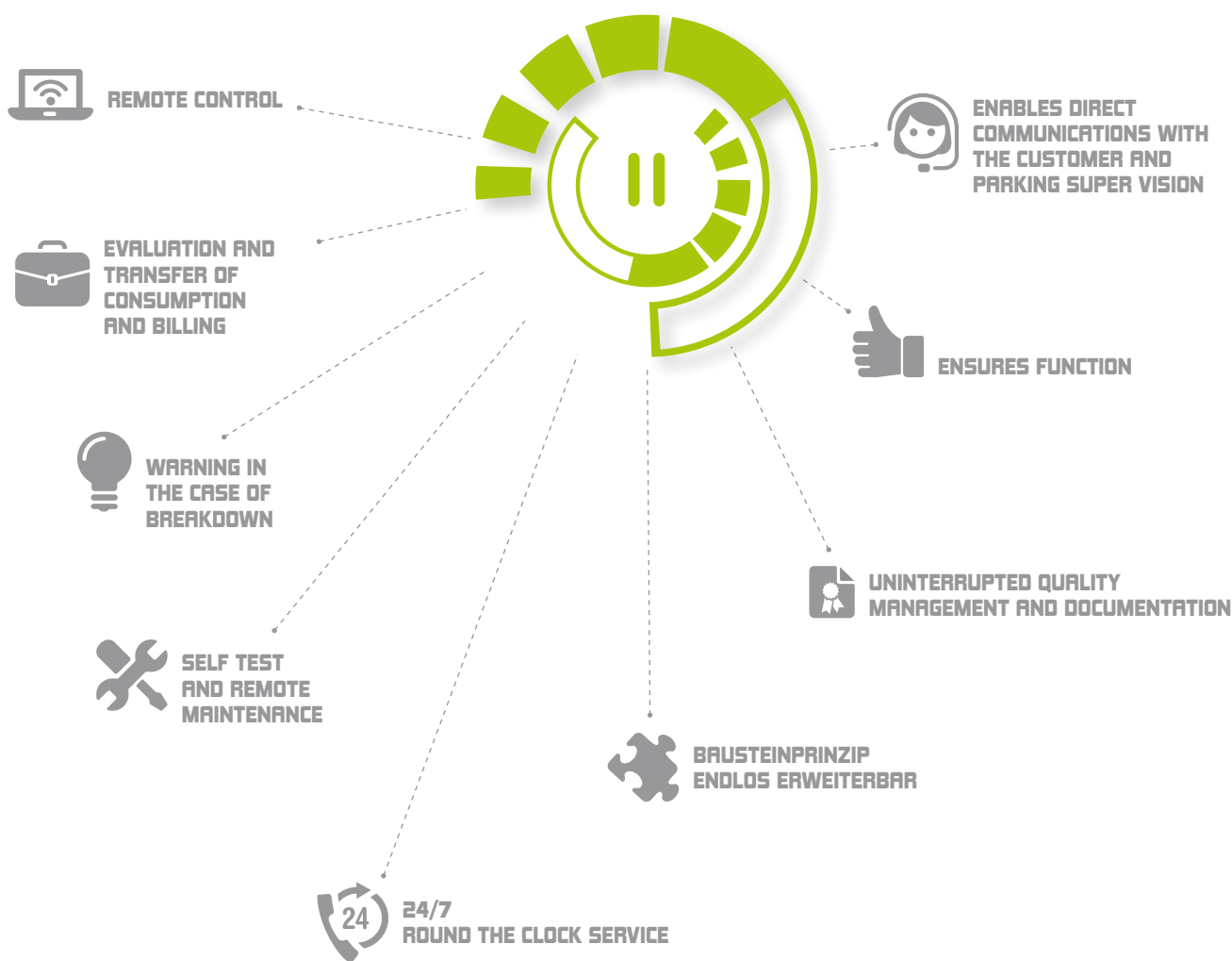
NEEDS ASSESSMENT

Extras

Spiral cable				
Plug type 1		Left		Right
Plug type 2		Left		Right

Casing sockets				
CEE		Left		Right
Schuko®		Left		Right

Current strength	
230 V / 20 A / 4,6 kW (one phase maximum)	
230 V / 32 A / 22 kW (three phase)	

Options	
Hands free system with call button and room wire-tapping function – GSM	
Hands free system with call button and room wire-tapping function – analog	
Remote control system with remote switchable fault current circuit breakers	
Built in camera for video surveillance of the car park	

Reading device	
RFID	
Bar code	
Magnetic card reader	

RFID - chip cards	Piece

Connection to a web portal	
Ethernet interface	
WLAN	
UMTS (optional)	

Assembly	
Wall	
Pole / support	

Billing with a car park ticket machine	
RFID	
Bar code	
Magnetic card reader	
Code keyboard	
Manufacturer	
Mobile billing	

! In order that no supply problems arise, we optionally offer you load management for the charging stations.

Innovation@work

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