



# Product Catalogue

Preheating - Chargers - Security  
2016-2017



THE CATALOGUE  
COVERS  
PRODUCTS FOR:



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# How to find your way

In this product catalogue you will find our full range of products in three main categories; preheating, charging and security. Each product page includes the product name, item number, product photo, and technical specifications.

For more information, guides and manuals - visit [defa.com](http://defa.com)

## **OTHER RESOURCES**

[www.defa.com](http://www.defa.com) is a very useful source of information about DEFA and our products. Here you will find all necessary information and documentation, such as user manuals and installation guides. You can also find the correct engine heater for your car. For more information regarding this matching tool, check page 13. We do our best to keep [defa.com](http://defa.com) updated at all times. Check back if you have questions or if you are curious about our new products.

At [defa.com](http://defa.com) you can also log in to the following portals:

- Link installation portal
- Security installation portal
- Tracking portal

*All logins must be approved by DEFA.*

## **SUPPORT**

If you want information, help or guidance regarding any of our products, please contact our support service telephone or mail:

Phone: +47 32 06 77 00 (extension 2)

Mail: [defa.automotive@defa.com](mailto:defa.automotive@defa.com)

## **ORDERS**

If you are a car dealer and have an arrangement where you order directly from DEFA, please place your orders via our online portal. To do this, chose "Login" at [defa.com](http://defa.com).

You can also place orders by phone or by mail:

Mail: [orders@defa.com](mailto:orders@defa.com)

Phone: +47 32 06 77 00 (extension 1)

Dealers who are part of a chain may order through their internal systems.

## **MARKETING**

We want to make it as easy as possible for you to sell and install our products. We update [defa.com](http://defa.com) regularly, we provide marketing materials and product catalogues, and we make further sales materials available to dealers and distributors, so they are in the best possible position to sell our products and make their customers happy.

We hope you find what you are looking for in the catalogue.

# Preheating products

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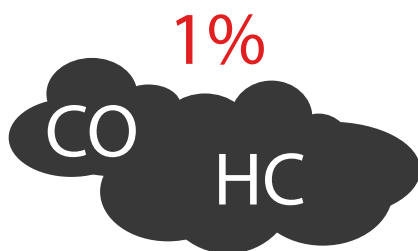
# COLD STARTS KILL

As winter arrives and temperatures drop, the subject of harmful emissions from private cars once again come to the forefront among politicians and journalists. The proposed solutions usually consist of fees, bans, and restrictions, but we offer a cheaper, simpler and equally efficient alternative - DEFA WarmUp.

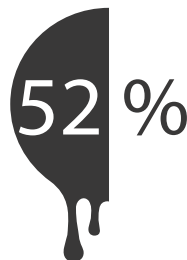
from cars preheated with DEFA WarmUp, compared to cars going through a regular cold start. The results show that preheating with WarmUp dramatically reduces all types of harmful emissions on cold days. And that's not all, WarmUp also reduces your fuel consumption and saves you money.

The independent institute VTT in Finland has conducted a series of tests on emission levels

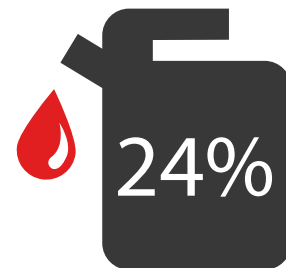
The results are presented below\*:



Hydrocarbons (HC) and Carbon Monoxide (CO) are reduced by up to 99%



Nitrogen Oxide (NOx) is reduced by up to 52%



Fuel consumption reduced by up to 24%

*\*The independent Finnish test institute VTT conducted full scale tests on cars with and without WarmUp installed. The tests were based on the New European Driving Cycle - NEDC, and were focused on the effect of electrical preheating on Euro5 and Euro6 cars. Read more at [defa.com](http://defa.com)*



# About WarmUp

WarmUp is an electrical preheating system consisting of an engine heater, a cabin heater (Termini™ 1400/1900W), a battery charger, the requisite cables, and a control unit. The engine heater is specialized for each car model, providing the best possible results.

A complete WarmUp system ensures a warm a comfortable cabin, ice-free windows, a fully charged battery, and a preheated, fuel efficient, environmentally friendly and smooth running engine. WarmUp is controlled directly from your phone with DEFA Link.

**DEFA WarmUp - Start your day in a better way!**



**Engine heater:**

- ✓ Lowers fuel consumption
- ✓ Reduces emissions
- ✓ Reduces wear on the engine



**Battery charger:**

- ✓ Makes sure your car starts
- ✓ Improves battery lifetime
- ✓ Reduces emissions



**Interior heater:**

- ✓ Comfortable, preheated cabin
- ✓ Ice-free windows
- ✓ Better visibility and safety

**Control through DEFA Link:**

- ✓ Pre-program pick-up times and desired cabin temperature
- ✓ Monitor battery status
- ✓ Check interior and exterior temperature
- ✓ Be alerted of theft
- ✓ Track and locate your car



# DEFA Link\*

Control your WarmUp preheating system, receive alerts if the car is moved and track its location, all on your mobile. Link will give you total control of your car, wherever you are.

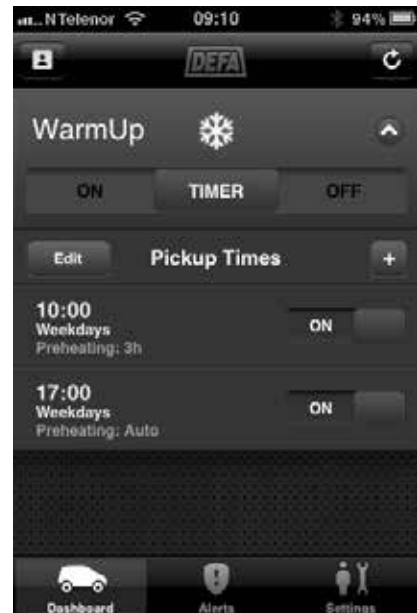
## WARMUP

With WarmUp Link it is easy to control the WarmUp system using your mobile, wherever you are. WarmUp Link makes it possible to pre-set when you want your car to be at room temperature and have ice-free windows.

You can monitor the outside and the inside temperature of the car, check the battery status and receive an alert if the voltage gets low. It is good to be in control of the battery on cold winter mornings to avoid being surprised by a car that doesn't start. All the DEFA WarmUp kits include a battery charger, so you don't need to worry about flat batteries any more.

WarmUp functionality:

- Set pick-up times
- Set preheating time
- Turn ON/OFF directly
- Monitor the battery status of the car
- Monitor temperature both inside and outside the car
- Receive alerts if 230V is not connected
- Receive alerts on low battery voltage



Insert pick-up times for when you want a preheated car.

## SECURITY AND FINDER

A GPS module installed in the car is communicating with your mobile phone over the mobile network (GPRS), offering these functionalities:

### Security

- Receive an alert if your car is started or moved - even with the original key.
- Speed Alert: Set a maximum speed limit, and receive an alert if the limit is exceeded.

### Finder

- Track and locate your car
- Share location information with the police and insurance company

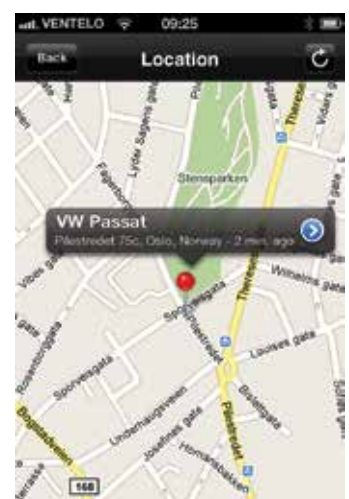
Is suitable for all vehicles, 12 or 24V.

Vehicles already equipped with DEFA preheating systems can be upgraded with DEFA Link.

For more information about which phones can be used, subscription terms and prices, check [www.defa.com](http://www.defa.com)



Receive theft alert if the car is started or moved.



Locate and follow the car's position on a map on your mobile.

\*) Available in Norway, Sweden, Denmark and Finland.



# DEFA Bluetooth®

Control your WarmUp preheating-system using Bluetooth® Smart technology on your mobile. You can use Bluetooth to pre-program heating times when you are in or around the car with Bluetooth activated. You need to download the DEFA-App to get started, and your phone must support Bluetooth® Smart\*. Unlike DEFA Link, Bluetooth® requires no subscription.

## WARMUP BLUETOOTH

With WarmUp Bluetooth® you can pre-set when you want your car to be heated. The system calculate when to start heating, based on the outside temperature, giving you a comfortable start of the day. All you have to do is to connect the cable.

It is good to be in control of the battery on cold winter mornings to avoid being surprised by a car that doesn't start. All the DEFA WarmUp kits include a battery charger, so you don't need to worry about flat batteries any more.

WarmUp functionality:

- Set pick-up times
- Set preheating times
- Turn ON/OFF directly
- Monitor battery status
- Monitor temperature outside the car
- Receive alerts if 230V is not connected
- Receive alerts if power cable is connected when car is started.

\*Bluetooth® Smart is available in Bluetooth 4.0 for the following phones:

- iPhone 4s and newer
- Android 4.4 and newer

\*\*\*differences might occur, use the DEFA-app on the relevant phone and verify Bluetooth Smart compatibility.



Bluetooth App dashboard



Monitor battery status



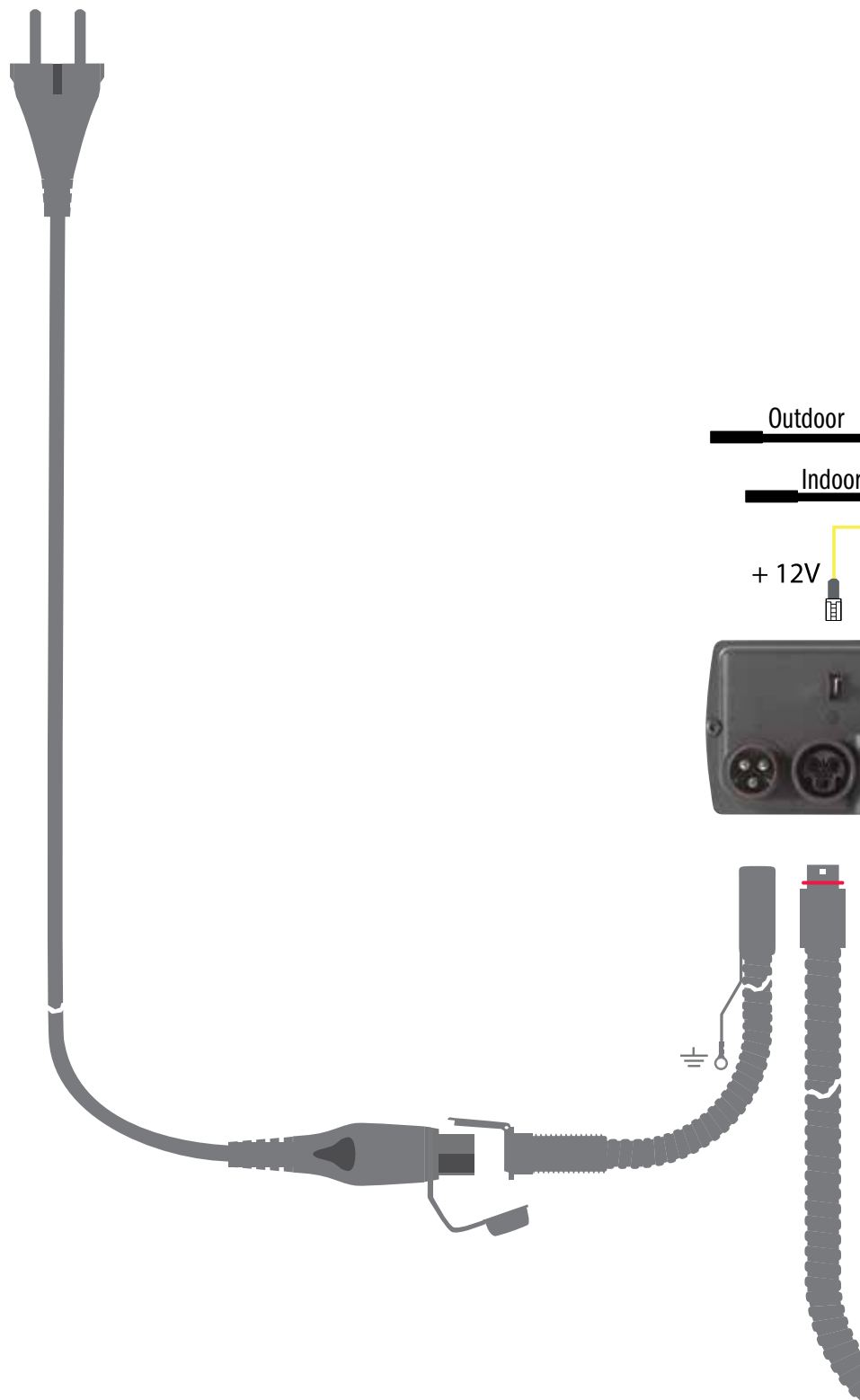
Insert pick-up times for when you want a preheated car.

“The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by DEFA is under license.”

# System overview

The circuit diagram illustrates temperature/time control of engine and interior heater through DEFA Link. The battery charger will charge independently of the heating settings.

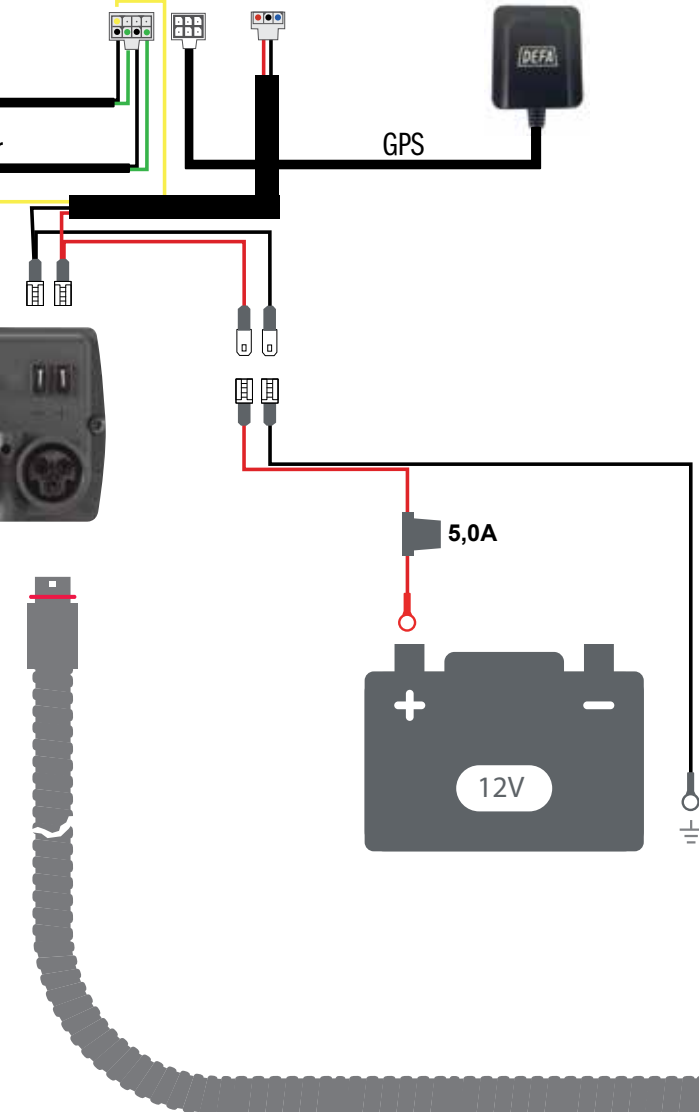
The overview also includes the GPS Link unit, to control Security and Finder functionalities in WarmUp GPS Link and Finder Link



**LINKHUB**  
page 23



**GPS LINK**  
page 23 and 99



**INTERIOR HEATER**  
page 20



**ENGINE HEATER**  
Page 12

# Engine heaters

With an engine heater from DEFA you get an engine that always starts, with less wear, reduced fuel consumption and reduced harmful emissions.

## DEFA PTC Hose heater - flexible and safe.

**EXTREMELY FLEXIBLE**  
Configurable for different hose dimensions and installation angles

**REDUCED PRESSURE DROP**  
Aluminum housing with advanced design

**THE LEAKAGE RISK BETWEEN ELEMENT AND COOLANT IS ELIMINATED**  
The heating element is physically separated from the coolant flow (no gasket)



**REDUCED POWER CONSUMPTION**  
Self-regulating PTC element

**«BURN-OFF» RISK FOR THE ELEMENT IS ELIMINATED**  
PTC element is a ceramic element with no heating wire

**LIMITS «OVER TEMPERATURE/PRESSURE»**  
Build-in thermostat which cuts the power

**EFFECTIVE WAY OF HEATING THE COOLANT**  
Heating element placed in the middle of the aluminum housing

## DEFA Engine heaters

A preheated engine is easier to start, is exposed to less wear, has reduced fuel consumption and provides up to a 71 % reduction in harmful emissions the first 20 minutes of driving on cold days. An electric engine heater is the most environmentally friendly way to achieve these benefits.

The purpose of an engine heater is to transfer heat to the engine in the most effective way possible. This can either be done indirectly, by heating the motor oil or antifreeze fluid, or directly, by heating the engine block or oil pan using a contact heater.

A DEFA engine heater raises the temperature of the engine to as much as 30-40 degrees above the outside temperature, depending the type of heater, where it is placed, and antifreeze volume. At -15 degrees, thermal balance is achieved when the heater has been connected for 3 hours, this means that any heat produced after that point only goes towards maintaining the engine temperature. By controlling your preheating through DEFA Link or DEFA Bluetooth you get the optimal effect, without using excess energy.

DEFA offers heating solutions for all types of vehicles and engines. Including tractors, trucks and buses. DEFA strives to find the best solution for every engine, whether it is big or small, cooled by air or water, and with or without core plugs.

For more information regarding engine heaters and installation, look up 'Technical Handbook' on [www.defa.com](http://www.defa.com) under 'Support'.

## PTC Hose heater

The new PTC hose heater is a flexible and safe engine heater solution which is easy to install in most car models. It is available in three dimensions: Ø16, Ø18 og Ø19. The heater is delivered with two hose angles of 180° mounted (see image above) and additionally 1x90° and 1x135° is included in the kit.



## PTC Hose heater kit - 230V

PTC Hose heater Ø16 mm	Item no. 412761
PTC Hose heater Ø18 mm	Item no. 412762
PTC Hose heater Ø19 mm	Item no. 412763

NOTE! IT IS IMPORTANT THAT ONLY RECOMMENDED ENGINE HEATERS ARE USED FOR EACH CAR MODEL. INSTALLATION OF AN ENGINE HEATER NOT RECOMMENDED BY DEFA, OR AN INSTALLATION THAT IS NOT ACCORDING TO GUIDELINES, CAN RESULT IN THE ENGINE HEATER NOT FUNCTIONING AND THE ELECTRONICS OF THE ENGINE BEING AFFECTED. DEFA CAN TAKE NO LIABILITY IF OUR RECOMMENDATION IS NOT FOLLOWED.

# Find your Engine Heater

## FIND THE CORRECT ENGINE HEATER

Our matching tool for finding the right engine heater for your specific car model allows you to search by make, model and engine code, as well as by registration number.\*'\*\*

An installation kit may be required for to install your heater. The product number of this kit is listed with your engine heater, along with installation instructions.


If the registration number search does not find an engine heater for the car, try searching by make, model and engine code.

\* Only available in Norway, Sweden and Finland

\*\* Registration number might not be available immediately after registration.

A screenshot of a web form titled 'Find engine heater'. It features a dropdown menu labeled 'Choose vehicle', three input fields for 'Engine heater:', 'Mounting kit:', and 'Engine code:', a red 'Search engine heater' button, and a 'Symbol support' link at the bottom. A red arrow points from the top of the form to the 'SafeStart' logo in the adjacent image.

The installation instructions are constantly being updated. To make sure the latest version is being used, it should be printed out before installation starts.

You will also find the recommended time needed for installation in the column marked 

This gives the time as A, B or C. Click on the "Key to symbols" link for further information.



NOTE! IT IS IMPORTANT THAT ONLY RECOMMENDED ENGINE HEATERS ARE USED FOR EACH CAR MODEL. INSTALLATION OF AN ENGINE HEATER NOT RECOMMENDED BY DEFA, OR AN INSTALLATION THAT IS NOT ACCORDING TO GUIDELINES, CAN RESULT IN THE ENGINE HEATER NOT FUNCTIONING AND THE ELECTRONICS OF THE ENGINE BEING AFFECTED. DEFA CAN TAKE NO LIABILITY IF OUR RECOMMENDATION IS NOT FOLLOWED.

In order to find the correct engine heater for the correct car model/engine, go to [www.defa.com](http://www.defa.com) and 'Find your heater'. When correct car model and engine type has been chosen it will be possible to download the last version of the installation guide.

For more information regarding engine heaters and installation, look up 'Technical Handbook' on [www.defa.com](http://www.defa.com) under 'Support'.

## SUPPORT

If you have questions or need instructions or installation assistance, please contact our customer support service at:

Tel: +47 32 06 77 00 (extension 2)

Mail: [defa.automotive@defa.com](mailto:defa.automotive@defa.com)

# WarmUp GPS Link

WarmUp GPS Link is a complete preheating and security system for your car that can be controlled with your mobile phone. Need subscription.

Maintain total control over your car - wherever you are. WarmUp GPS Link lets you control the preheating in your car and track the car's location on your mobile phone. In addition, you will be alerted if the car is moved, you can track its location in your Link app, and you can set a maximum speed and be alerted if someone is driving too fast while borrowing your car. WarmUp also reduces fuel consumption and harmful emissions.

- WarmUp GPS Link is available in two different versions depending on the required power of the Termini™ interior heater.
- WarmUp GPS Link includes everything besides the engine heater, which must be ordered separately and integrated in the system.



## WarmUp 1400 GPS Link - 471272

Termini™ II 1400	430055
MultiCharger 1203	450009
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn extension cable - 0,5m	460802
Termini™ extension cable - 1,75m	460860
MiniPlug Xtreme connection cable - 2,5m	460955
MiniPlug inlet cable - fitting equipment	418801
LinkHub	440030
LinkHub mounting kit	440036
GPS antenna	440037
Assembly equipment	

## WarmUp 1900 GPS Link - 471273

Termini™ II 1900	430065
MultiCharger 1203	450009
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn extension cable - 0,5m	460802
Termini™ extension cable - 1,75m	460860
MiniPlug Xtreme connection cable - 2,5m	460955
MiniPlug inlet cable - fitting equipment	418801
LinkHub	440030
LinkHub mounting kit	440036
GPS antenna	440037
Assembly equipment	

*\*Available in Norway, Sweden, Denmark and Finland.*

# WarmUp Bluetooth®

WarmUp Bluetooth® is a complete preheating system that can be controlled with the DEFA app and Bluetooth Smart technology. With WarmUp your car will always be warm and comfortable, and your battery will always be fully charged and ready to go. WarmUp also reduces fuel consumption and harmful emissions.

Pre-program your WarmUp system when you are in the vicinity of your car.

- WarmUp Bluetooth® is available in two different versions depending on the required power of the Termini™ interior heater.
- WarmUp Bluetooth® includes everything besides the engine heater, which must be ordered separately and integrated in the system.

<b>WarmUp 1400 Bluetooth® - 471280</b>	
	Termini™ II 1400 430055
	MultiCharger 1203 450009
	MiniPlug inlet cable - 1,5m 460915
	PlugIn extension cable - 1,0m 460803
	PlugIn extension cable - 0,5m 460802
	Termini™ extension cable - 1,75 m 460860
	MiniPlug Xtreme connection cable - 2,5m 460955
	MiniPlug inlet cable - fitting equipment 418801
	Bluetooth Hub 440051
	Assembly equipment
<b>WarmUp 1900 Bluetooth® - 471281</b>	
	Termini™ II 1900 430065
	MultiCharger 1203 450009
	MiniPlug inlet cable - 1,5m 460915
	PlugIn extension cable - 1,0m 460803
	PlugIn extension cable - 0,5m 460802
	Termini™ extension cable - 1,75 m 460860
	MiniPlug Xtreme connection cable - 2,5m 460955
	MiniPlug inlet cable - fitting equipment 418801
	Bluetooth Hub 440051
	Assembly equipment

# WarmUp SmartStart™

WarmUp SmartStart™ is a complete preheating system that is controlled with a two-way wireless control unit. With WarmUp your car will always be warm and comfortable, and your battery will always be fully charged and ready to go. WarmUp also reduces fuel consumption and harmful emissions.

- WarmUp SmartStart™ is a two-way wireless Control Unit to control your car heating system.
- WarmUp SmartStart™ is delivered in two versions, the effect on the DEFA Termini™ cabin heater differs. An engine heater can be ordered separately and integrated in the system



## WarmUp 1400 SmartStart™ - 471268

Termini™ 1400	430055
MultiCharger 1203	450009
MiniPlug Inlet Cable - 1,5m	460915
PlugIn Extension Cable- 0,5m	460802
PlugIn Extension Cable - 1,0m	460803
SmartStart™ wireless Control Unit	440020
Termini™ Extension Cable - 1,75m	460860
MiniPlug Inlet Cable - fitting equipment	418801
MiniPlug Xtreme Connection Cable - 2,5m	460955
Assembly Equipment	

## WarmUp 1900 SmartStart™ - 471271

Termini™ 1900	430065
MultiCharger 1203	450009
MiniPlug Inlet Cable- 1,5m	460915
PlugIn Extension Cable- 0,5m	460802
PlugIn Extension Cable - 1,0m	460803
SmartStart™ wireless Control Unit	440020
Termini™ Extension Cable - 1,75m	460860
MiniPlug Inlet Cable- fitting equipment	418801
MiniPlug Xtreme Connection Cable- 2,5m	460955
Assembly Equipment	



# WarmUp Futura

WarmUp Futura is a complete preheating system controlled with an in-car timer. With WarmUp Futura your car will always be warm and comfortable, and your battery will always be fully charged and ready to go. WarmUp also reduces fuel consumption and harmful emissions.

- WarmUp Futura includes a control unit that has a simple, easy-to-read display for permanent installation inside the car.
- WarmUp Futura is available in two different versions depending on the required power of the DEFA Termini™ interior heater. An engine heater can be ordered separately and integrated in the system

<b>WarmUp 1400 Futura - 471267</b>	
	Termini™ 1400 430055
	MultiCharger 1203 450009
	MiniPlug Inlet Cable - 1,5m 460915
	PlugIn Extension Cable - 0,5m 460802
	PlugIn Extension Cable - 1,0m 460803
	Futura Control Unit 440010
	Termini™ Extension Cable- 1,75m 460860
	MiniPlug Inlet Cable - fitting equipment 418801
	MiniPlug Xtreme Connection Cable- 2,5m 460955
Assembly Equipment	
<b>WarmUp 1900 Futura - 471270</b>	
	Termini™ 1900 430065
	MultiCharger 1203 450009
	MiniPlug Inlet Cable - 1,5m 460915
	PlugIn Extension Cable - 0,5m 460802
	PlugIn Extension Cable- 1,0m 460803
	Futura Control Unit 440010
	Termini™ Extension Cable- 1,75m 460860
	MiniPlug Inlet Cable - fitting equipment 418801
	MiniPlug Xtreme Connection Cable - 2,5m 460955
Assembly Equipment	

# ComfortKit Plus

The ComfortKit Plus is a simple way to ensure a warm and comfortable cabin and windows free of ice. ComfortKit Plus also includes a 4A MultiCharger and the necessary connection components. The different sets have varying outputs - 1400 or 1900W. The ComfortKit can be expanded with an engine heater and a control unit or app control.



## ComfortKit 1400 Plus - 470068

Termini™ II 1400	430055
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn Y-connector	460853
PlugIn extension cable - 0,5m	460802
Termini™ extension cable - 1,75m	460860
MiniPlug inlet cable - fitting equipment	418801
MiniPlug Xtreme connection cable - 2,5m	460955
MultiCharger 1204	450020

Assembly equipment

## ComfortKit 1900 Plus - 470069

Termini™ II 1900	430065
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn Y-connector	460853
PlugIn extension cable - 0,5m	460802
Termini™ extension cable - 1,75m	460860
MiniPlug inlet cable - fitting equipment	418801
MiniPlug Xtreme connection cable - 2,5m	460955
MultiCharger 1204	450020

Assembly equipment

# ComfortKit

The ComfortKit is a simple way to ensure a warm and comfortable cabin and windows free of ice. The different sets have varying outputs - 1400 or 1900W. The ComfortKit can be expanded with an engine heater, a battery charger and a control unit or app control.



## ComfortKit 1400 - 470066

Termini™ II 1400	430055
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn Y-connector	460853
Termini™ extension cable - 1,75m	460860
MiniPlug inlet cable - fitting equipment	418801
MiniPlug Xtreme connection cable - 2,5m	460955
Assembly equipment	

## ComfortKit 1900 - 470067

Termini™ II 1900	430065
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn Y-connector	460853
Termini™ extension cable - 1,75m	460860
MiniPlug inlet cable - fitting equipment	418801
MiniPlug Xtreme connection cable - 2,5m	460955
Assembly equipment	

## ComfortKit 2100 - 470060

Termini™ 2100	430060
MiniPlug inlet cable - 1,5m	460915
PlugIn extension cable - 1,0m	460803
PlugIn Y-connector	460853
Termini™ extension cable - 1,75m	460860
MiniPlug inlet cable - fitting equipment	418801
MiniPlug Xtreme connection cable - 2,5m	460955
Assembly equipment	

# Termini™

The Termini™ II interior heater provides a warm and comfortable cabin and ice-free windows. The output is adjusted in relation to the interior temperature, by the PTC (PTC = Positive Temperature Coefficient) heating element.

A 20°C temperature increase will result in a 10% power reduction and as the interior temperature increases the power will gradually be reduced accordingly. The interior heater is equipped with an automatic over-temperature protection. All interior heaters are approved by: Safety EN 60335-1 and EN 50408. Termini has IP rate 20.



## Termini™ II 1200

Item No. Schuko	430058
Collection box - pcs	12
Output -25°C - W	0/1200
Height/Width/Depth - mm	32/138/182
Weight - gr	595
Bracket weight - gr	20



## Termini™ II 1400

Item No. Mini contact	430055
Item No. Schuko	430056
Collection box - pcs	12
Output -25°C - W	0/1400
Height/Width/Depth - mm	32/138/182
Weight - gr	595
Bracket weight - gr	20



## Termini™ II 1700

Item No. Schuko	430068
Collection box - pcs	10
Output -25°C - W	0/830/1700
Height/Width/Depth - mm	38/138/183
Weight - gr	665
Bracket weight - gr	20

# Termini™



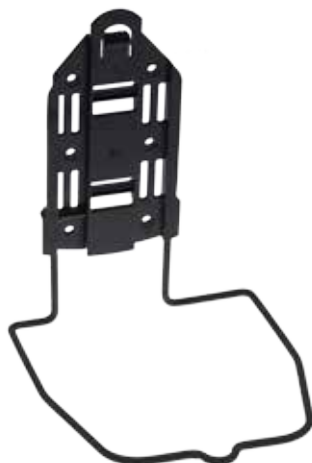
## Termini™ II 1900

Item No. Mini contact	430065
Item No. Schuko	430066
Collection box - pcs	10
Output -25°C - W	0/1150/1900
Height/Width/Depth - mm	38/138/183
Weight - gr	665
Bracket weight - gr	20



## Termini™ 2100

Item No. Mini contact	430060
Item No. Schuko	430061
Collection box - pcs	10
Output -25°C - W	0/1350/2100
Height/Width/Depth - mm	47/141/183
Weight - gr	745
Bracket weight - gr	20



## Termini™ Stand

Item No.	430100
Height/Width/Depth - mm	145x127x65
Weight - gr	112

Sold separately, and can be used together with all Termini™ interior heaters.

# PlugIn branch sets

DEFA branch set consists of DEFA PlugIn extension cables in different lengths and DEFA PlugIn Y-connector for connecting engine and interior heaters.

The sets are also suitable for those who have engine heaters and want to upgrade to a complete preheating system combined with an interior heater. If you want to connect DEFA Termini™ with Termini™ Mini Contact, you can use branch set 460750 or 460751. If the interior heater has a Schuko plug, use 760/762/766/768/769. The difference lies in the length of the cables. Different car models require separate sets. See Code Type List column 8.



## Branch set - 460750

PlugIn extension cable - 1,0 m	460803
PlugIn Y-connector	460853
Termini™ extension cable - 1,75 m	460860

## Branch set - 460751

PlugIn extension cable - 1,5 m	460843
PlugIn Y-connector	460853
Termini™ extension cable - 1,75 m	460860

## Branch set - 460760

PlugIn extension cable - 0,5 m	460802
PlugIn extension cable - 1,0 m	460803
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

## Branch set - 460762

PlugIn extension cable x 2 - 1,0 m	460803
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

## Branch set - 460765

PlugIn extension cable - 1,0m	460803
PlugIn extension cable - 2,0m	460804
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

## Branch set - 460766

PlugIn extension cable - 1,0m	460803
PlugIn extension cable - 1,5m	460843
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

## Branch set - 460768

PlugIn extension cable - 0,5m	460802
PlugIn extension cable - 1,5m	460843
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

## Branch set - 460769

PlugIn extension cable - 0,5m	460802
PlugIn extension cable - 2,0m	460804
PlugIn Y-connector	460853
PlugIn interior heater socket	460829

# Link\*

Control and monitor your preheating and security systems with your mobile phone - wherever you are.  
With DEFA Link you never have to get in to a cold car again.



\*Available in Norway, Sweden, Finland and Denmark.



## LinkHub

Item No.	440030
Height/Width/Depth - mm	78 (114)/78/23
Voltage - V	8 - 32V
Current draw, average - mA	19 *)
Operating temperature - °C	-40 - +85

\*) Without GPS module.



## Mounting Kit WarmUp Link

Item No.	440036
----------	--------



## GPS Link

Item No.	440037
Height/Width/Depth - mm	44/38/19
Average power consumption - mA	5 *)
Protection class - IP	67

\*) with the ignition off.



## Link GPS Upgrade - 440038

LinkHub	440030
WarmUp Link mounting kit	440036
GPS Link	440037
PlugIn Relay contact	460854
PlugIn extension cable - 0,5m	460802

# Bluetooth®

Control DEFA WarmUp with Bluetooth® from your mobile without the need for a subscription. Pre-program the system in the vicinity of the car when Bluetooth is activated, and you never have to get in to a cold car again. The Bluetooth Hub control unit can be installed in the engine compartment, without any cables into the interior compartment.



## THE FOLLOWING PROGRAMS CAN BE USED

- Automatic start controlled by the outside temperature
- 1 hour preheating time
- 2 hours preheating time
- 3 hours preheating time
- 4 hours preheating time
- DEFA WarmUp ON
- DEFA WarmUp OFF



### Bluetooth® Hub Control Unit

Item No.	440051
Operating temperature	-40 - +80 °C
Voltage - V	8 - 32VDC
Average current consumption - mA	2mA
Height/Width/Depth - mm	112/46/24
IP rate	IP6k9k
Frequency/Radio protocol	2,4GHz /Bluetooth Smart
Range	In and around the car
Weight, Bluetooth® Hub	35g
Weight, cables	150g



### Bluetooth Upgrade - 440052

Bluetooth Hub Control Unit	440051
Power cable with fuse	418105
PlugIn Relay connector	460854
PlugIn Extension cable 0,5 m	460802



### Power cable with fuse

Item No.	418105
----------	--------

This power cable with fuse must be ordered separately in case of:

- Upgrade of existing pre-heating systems without control unit
- Installation of Bluetooth® Hub and relay



# SmartStart™

The control unit DEFA SmartStart™ 12/24V, which is included in the WarmUp SmartStart™ kits, is a two-way wireless control unit that makes sure that the car is preheated when you need it.

SmartStart can be programmed with set departure times, for which the car will be preheated. This feature is very useful for people who leave for work at the same time every morning. The system can either be programmed to preheat for a set duration, or to automatically determine the required heating period based on the outside temperature.

### THE FOLLOWING PROGRAMS CAN BE USED:

- Automatic start adjusted according to the outside temperature
- 1 hour preheating time
- 2 hours preheating time
- 3 hours preheating time
- 4 hours preheating time
- Control of fuel heat (analogue control signal)
- DEFA WarmUp ON
- DEFA WarmUp OFF



### SmartStart™

Item No. 12V with car unit	440020
Item No. 24V with car unit	440021
Operating temperature remote control (RC) - °C	-10 - +60
Operating temperature car unit (VU) - °C	-40 - +80
Battery RC	6V Lithium 2CR-1/3N
Range - m ⚠	up to 400
Frequency - MHz	868, 370
Current consumption RC	<5µA
Height/Width/Depth RC - mm	78/34/16
Height/Width/Depth VU - mm	69/54/23
Weight RC - gr	29
Test and approval	EN 301 489-1:2005-04, ETSI EN 300 220-1:2000-09 EN 301489-1



### SmartStart™ spare parts

SmartStart™ remote control RC	418100
SmartStart™ VU 12V	418101
SmartStart™ VU 24V	418102
Lithium battery ⚠	418103
Cable harness	418072

# Futura

DEFA Futura is a control unit included in WarmUp Futura kits and installed in the drivers compartment of the car. It ensures that the car is preheated when you need it.

Futura can be programmed with set departure times, for which the car will be preheated. This feature is very useful for people who leave for work at the same time every morning. The system can either be programmed to preheat for a set duration, or to automatically determine the required heating period based on the outside temperature.

## THE FOLLOWING PROGRAMS CAN BE USED:

- Automatic start adjusted according to the outside temperature
- 1 hour pre-heating time
- 2 hours pre-heating time
- 3 hours pre-heating time
- DEFA WarmUp ON
- DEFA WarmUp OFF



### Futura control unit

Item No. without relay box	440010
Best.nr. with relay box	440011
Voltage - V	12
Current consumption - mA	3,5
Height/Width/Depth - mm	37/47/13
Weight - gr	19
Test and approval	EN 50081-1, EN 50082-1

### Futura spare parts

Wire harness WarmUp with temperature sensor 12V	418007
Wire harness without temperature sensor 12V	418059
Temperature sensor	418071
Control unit	418067

# Connection cables

DEFA Connection cables are developed for DEFA MiniPlug and provides a reliable connection from your mains power outlet to the car. The MiniPlug Xtreme is more durable and is suited for cold weather and rough treatment. Xtreme has a black cap to distinguish it from the MiniPlug.



## MiniPlug Xtreme Connection cable 1,5mm<sup>2</sup>

Item No. - 2,5m	460955
Item No. - 5,0m	460957
Number of pcs in collection box	460955: 22 460957: 12
Voltage - VAC	230
Current, max. - A	16
Weight - gr	460955/309 - 460957/535



## MiniPlug Connection cable 1,5mm<sup>2</sup>

Item No. - 2,5m	460920
Item No. - 2,5m with angle contact	460933
Item No. - 3,5m	460938
Item No. - 3,5m with angle contact	460942
Item No. - 5,0m	460921
Item No. - 10,0m	460924
Item No. - 15,0m	460936
Number of pcs in collection box	920/22 - 921/12 - 924 and 936 indiv.
Voltage - VAC	230
Current, max. - A	16
Weight - gr	920/420 - 921/695 - 924/1180 - 936/1700



## MiniPlug Connection cable 2,5mm<sup>2</sup>

Item No. - 2,5m	460960
Item No. - 5,0m	460961
Item No. - 10,0m	460962
Number of pcs in collection box	960/22 - 961/12 - 962/1
Voltage - VAC	230
Current, max. - A	16
Weight - gr	530/915/1520 (2,5/5,0/10,0m)

DEFA Connection cable 2,5 mm<sup>2</sup> is used for vehicles with special requirements for connection cables, such as ambulances and fire engines with special equipment. Even if the cable is available with a 2,5mm<sup>2</sup> core cross-section, the maximum power consumption is 16A.

# Connection cables and sets

The DEFA MiniPlug Inlet cable is developed to fit all new cars. Flush and bracket mounting is equally simple. DEFA MiniPlug was developed with the goal of creating user friendly design, better safety and total reliability.



### Connection set 460785

MiniPlug Inlet cable - 1,5 m	460915
MiniPlug Xtreme Connection cable - 2,5 m	460955
MiniPlug Inlet cable - fitting equipment	418801

### Connection set 460787

MiniPlug Inlet cable - 1,5 m	460915
MiniPlug Xtreme Connection cable - 5,0 m	460957
MiniPlug Inlet cable - fitting equipment	418801



### Connection set 460789

MiniPlug Inlet cable - 1,5 m	460915
MiniPlug Connection cable - 2,5 m	460933
MiniPlug Inlet cable - fitting equipment	418801



### CEE Connection cable

Item No. 2,5m	460820
Item No. 5,0m	460821
Item No. loose Inlet contact	460824
Number of pcs in collection box	820/22 - 821/12
Voltage - VAC	230
Current, max. - A	16
Weight - gr	465/805 [2,5/5,0m)
Test and approval	EN 50066-1, EN 60309-1

# Inlet cables

DEFA MiniPlug Inlet cables are tailor-made for all new car models, and are delivered with improved mounting equipment to make the installation easier. The new mounting equipment consists of a set of mounting rings to be used for optimal installation in the car's front, and a bracket to be used behind the license plate.



## MiniPlug Inlet cables

Item No. (0,6m)	460902
Item No. (1,0m)	460901
Item No. (1,5m)	460915
Item No. (2,0m)	460939
Voltage - VAC	230
Current - A	16
Weight (Length/Weight) - m/kg	1,5/0,410 - 2,0/0,570

The Inlet cable has a MiniPlug 'female-connector' with a cap in one end and a DEFA PlugIn connector in the other. In addition, it has an earth connector for earthing the system.



## MiniPlug Mounting Rings

Item No.	460997
Diameter rings - mm	55 - 45 - 40

The mounting disc set consists of two mounting discs and a supporting disc which gives a more optimal and flexible installation for the appliance inlet cable. It allows for discreet placement and eliminates the need for drilling into the car's front section. Easy installation provides reduced mounting time. The discs are also enclosed in the appliance inlet mounting kit.



## MiniPlug Mounting Bracket

Item No.	460996
Height/Width/Thickness - mm	160x40x2
Dimension mounting holes - mm	6

The bracket fixed behind the license plate makes it possible to install the inlet in the front of the car - vertically or horizontally, whichever is more suitable for each vehicle.

# PlugIn extension cables

The components are easily connected together with DEFA's armored PlugIn extension cables. The system ensures a reliable and tight connection and eliminates incorrect connections.



## PlugIn extension cables

Length - m	0,5 - 1 - 2 - 3 - 4 - 5 - 8 - 12
Voltage - VAC	230
Current - A	16
IP rate	44

## PlugIn extension cables

Item No.	Length - m	Weight - gr	Pcs. in collection box
460802	0,5	145	22
460803	1,0	265	22
460843	1,5	380	22
460804	2,0	497	22
460844	3,0	731	12
460846	4,0	965	12
460809	5,0	1200	1
460847	8,0	1900	1
460850	12,0	2838	1



## Termini™ interior heater cable with Mini-contact

Item No.	460860
Length - m	1,75 (soft part 0,6m - armored part 1,15m)
Number of pcs in collection box	Single box or 22
Voltage - VAC	230
Current, max. - A	16
Weight - gr	250
IP rate	44

# PlugIn branches and connectors

The DEFA relay connector is adapted to DEFA PlugIn contacts and used to control the engine and interior heater, together with a DEFA control units. It can also be used for separate control of engine and interior heaters together with DEFA SmartStart. At branching, use T- or Y- connectors.



## PlugIn Relay connector

Item No. 12V	460854
Item No. 24V	460856
Range of use °C	-40 / +80
Height/Width/Depth - mm	61/31/67
Mains voltage- VAC	230/12, 230/24
Current - A	Max 16
Weight - gr	59
Insulation class - cl	II
IP rate	44



## PlugIn Y-connector

Item No.	460853
Height/Width/Depth - mm	53/48/24
Mains voltage - VAC	230
Current, max. - A	16
Weight - gr	23
IP rate	44

DEFA Y-connector is an all-welded connector for connecting engine and interior heater or MultiCharger battery charger.



## PlugIn T-connector 90°

Item No.	460831
Height/Width/Depth - mm	42/63/21
Mains voltage - VAC	230
Current, max. - A	16
Weight - kg	0,022
IP rate	44

DEFA T-connector is an all-welded connector for connecting the engine and interior heater or the MultiCharger battery charger.

# PlugIn branches and contacts



## LED Indicator Kit

Item No.	460881
Mains voltage - VAC	110-240
Current, max. - A	16
IP rate, PlugIn/LED	44/67



## PlugIn relay box

Item No. 12V	460838
Item No. 24V	460863
Range of use °C	-40 / +80
Height/Width/Depth - mm	63/56/70
Mains voltage - VAC	230/12, 230/24
Current, max. - A	16
Weight - gr	101
Insulation class - cl	II
IP rate	44

\*Not suitable for DEFA Link or Bluetooth



## PlugIn Interior heater socket

Item No.	460829
Height/Width/Depth - mm	70/54/41
Voltage - V	250/12
Current, max. - A	10
IP rate	20



## Termini™ Adapter cable

Item No.	418069
Length - m	0,25
Voltage- V	250/12
Current, max. - A	16
Weight - gr	54
IP rate	44



# Special tools

Tools for installation of MiniPlug and of cables through firewalls.



## Pullwire kit 866

Item No.	460866
No. of pcs.	1 set

Tool for simpler installation of PlugIn extension cables with male or female contact through the firewall. Delivered with 2 extensions of 1m.



## Pullwire kit 868

Item No.	460868
No. of pcs.	2

Tool for simpler installation of PlugIn extension cables with male or female contact through the firewall. Delivered with 2 extensions of 1m.



## Installation tool

Item No.	460840
Hole saw Ø24mm	For MiniPlug inlet cable
Hole saw Ø20mm	For Interior heater cable
File	For MiniPlug feed track
Hole saw retainer	With pilot hole drill



## Tools for feed through bulkhead

Item No.	460862
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Put the tools on PlugIn male or female contact for simpler installation through the firewall.



## Crow foot tool

Item No.	460867
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Crow foot 27mm.  
Mounting- and dismantling tool for simpler installation of the following engine heaters: 241, 277, 292, 299.



## Tool for heater 241

Item No.	460861
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Steering tool for Allen wrench.

# Extractor tools

To use these tools, you need the main tools, the extractor and the taper clamping sleeve. The extractor and taper clamping sleeve can be purchased separately in 4 different sizes, depending on the inside diameter of the frost plug you wish to remove.

The tool is suitable for deep frost plugs and functions like an extractor. It is securely tightened around the side walls of the frost plug by tightening the nut. Next, a suitable adapter sleeve is attached. The frost plug is gradually pulled off by tightening the nut. Follow the instructions that come with the tools! These tools come separately or in a complete set.



## Complete extractor tools

Item No. 491012

Consists of main tools (491011), 4 extractor tools (491006) og 4 taper clamping sleeves (491005).



## Main tools

Item No. 491011



## Extractor

Item No. complete set (4 extractors) 491006

Item No. (Ø20mm) 491001

Item No. (Ø27mm) 491002

Item No. (Ø34mm) 491003

Item No. (Ø41mm) 491004



## Taper clampings

Item No. complete set (4 taper clampings) 491005

Item No. (Ø31mm) 491007

Item No. (Ø35mm) 491008

Item No. (Ø39mm) 491009

Item No. (Ø46mm) 491010



## Extractor hook

Item No. 30,5mm 460835

Item No. 37,5mm 460836

Item No. 44,5mm 460837

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# DEFA Charging products



DEFA offers battery chargers for a wide variety of vehicles, the maritime sector, and industrial applications.

DEFA develops and manufactures a series of charging products that allow our customers to get the most out of their batteries.

Emergency vehicles and boats, life-saving equipment and electronic wheelchairs impose the strictest standards both on us and our products, and are just some of the things that drive us to always want to do better.

We continuously strive to meet the highest standards of quality, safety and flexibility, and to keep our customers going - for longer than ever.

DEFA charging products have been developed for use with our own protected and splash proof cables with PlugIn connectors. The system eases installation of 230VAC in boats, mobile units and military equipment, and 42VAC charging systems for life- and rescue boats. The system is intuitive, reliable and durable, and can be installed without tools or a certified installer.

The 250VAC shore power system for boats includes a distribution box with fuses, a ground leakage circuit breaker, mains connections, outlets, PlugIn battery chargers and galvanic isolators to reduce the risk of galvanic corrosion and ground leakage. The system is module-based, enabling extension with additional components, such as engine heaters and auxiliary equipment.

Our customers are professional and private users in such areas where strict demands are required to meet expectations on functionality and a high degree of readiness. Quality control, knowledge and customer demand is an important part of our development and product philosophy.

# Battery care

When you connect two 12V batteries in a series to create a 24V output, the battery closest to minus will always obtain the least amount of charging. This reduces the total capacity of the bank, and results in poor energy economy.

## NEGATIVE CHARGING

Negative charging is an unfamiliar term for most owners of cars, trucks and busses. Even so, the problem of negative charging is commonplace.

A battery consists of a collection of cells that provide energy. A 12V battery, commonly found in private cars and smaller boats, normally contains six such cells. For heavier vehicles, such as trucks and buses, 24V is preferred, since they require more "pressure" (voltage) to start. A 24V setup is often made by connecting two 12V batteries in a series.

When charging these batteries, a sufficiently high voltage is necessary to ensure that they are fully charged. Generally speaking, a low charging voltage reduces battery lifespan. The proper charging voltage for 12V lead/acid car batteries is 14,4V at a temperature of 20 degrees.

Most cars produce insufficient charging voltage, and the problem of negative charging will be especially noticeable in 24V setups. Charging the batteries separately over night is the best way to avoid this issue.

A quality charger must also switch to maintenance voltage when the batteries are fully charged. This voltage is a little lower, and makes sure that the batteries do not expend too much fluid.

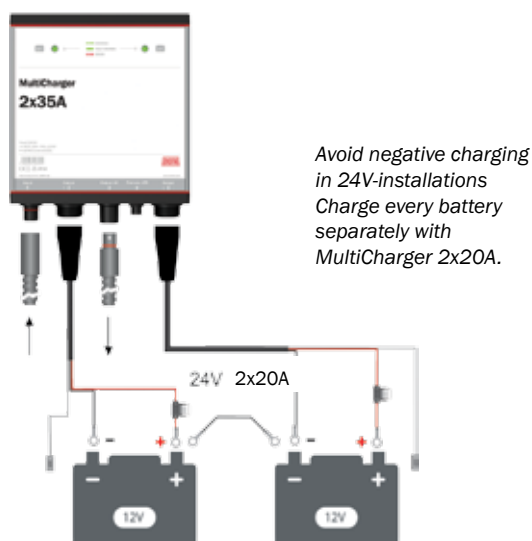
## LONGEVITY

One can generally say that low charging voltage gives the batteries a short lifespan. When charging, it is necessary that the charger's voltage is high enough to fill the batteries completely. Correct charging voltage for a lead/acid car battery is 14,4V (for a "12V" battery) at 20°C. Most cars give too low charging voltage and in 24V installations negative charging will intensify the problem even more. It is therefore important to charge the batteries separately (see figure below) during the night. In that way both batteries achieve the correct voltage. When choosing a charger one should also make sure that the charger automatically changes to maintenance voltage when the batteries are full. This voltage should stay a little lower in order to make sure that the batteries are not "cooked", i.e. that the batteries consume too much fluid.

## IN SHORT

Excellent operating economy is achieved by charging batteries in a 24V setup at a voltage of 14,4V at a temperature of 20 degrees.

- Negate negative charging by using a charger that charges the batteries individually
- Use a charger that switches to maintenance voltage when the batteries are fully charged.
- Keep batteries and cables clean, and make sure that the fluid levels in the batteries are correct.



# MultiCharger 1x12A

DEFA MultiCharger 1x12A is a battery charger made for permanent installation in vehicles. It is well suited for all lead/acid batteries (AGM,GEL,EFB, Start&Stop) up to 150Ah. With the DEFA Plugin connectors, both input and output, this charger integrates perfectly into the rest of the DEFA system.

The charger is delivered with 2 meter fixed cable including temperature sensor



## MultiCharger 1x12A

Item No	705200
Mains Voltage [VAC]	230
Operating temperature [°C]	-35 +50
Charging voltage* S1 [VDC]	14,4
Float voltage S2 [VDC]	13,5
Charging current [A]	12
Battery size. [Ah]	150
IP-rate	44
Weight [kg]	1
Height/Width/Depth [mm]	138x98x53
Certifications	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

\* Temperature compensated ca 5,0 mV/oC/celle. Ref. 25 oC.

# MultiCharger 2x12A

DEFA MultiCharger 2x12A consists of two 12A battery chargers mounted on the same bracket. This combination is made for permanent installation in vehicles. It is well suited for all lead/acid batteries (AGM,GEL,EFB, Start&Stop) up to 2x150Ah. With the DEFA Plugin connectors, both input and output, this charger integrates perfectly into the rest of the DEFA system.

The charger is delivered with 2 meter fixed cable including temperature sensor.



## MultiCharger 2x12A

Item No	705300
Mains Voltage [VAC]	230
Operating temperature [°C]	-35 +50
Charging voltage* S1 [VDC]	14,4
Float voltage S2 [VDC]	13,5
Charging current. [A]	2x12
Battery size [Ah]	2x150
IP-rate	44
Wight [kg]	2
Height/Width/Depth [mm]	138x201x53
Certifications	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

\* Temperature compensated ca 5,0 mV/oC/celle. Ref. 25 oC.

# MultiCharger 1x20A

DEFA MultiCharger 1x20A is a powerful and compact charger that is easily installed in all types of vehicles. It is designed to handle any conditions. To make the system more flexible, DC cable in the desired length is ordered separately. Cables available in 2, 4 and 6 meters.



## MultiCharger 1x20A **NEW!**

Item No.	705800
Mains Voltage - VAC/Hz	230/50-60
Operating temperature - oC	-35 +50
Charging Voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Charging Current - A	20
Battery size - Ah	250
IP-rate	44
Weight - kg	2
Height/Width/Depth - mm	182x98x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2



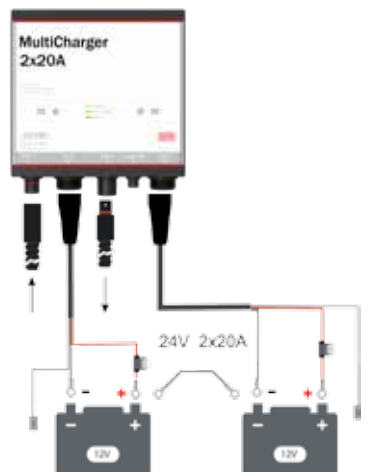
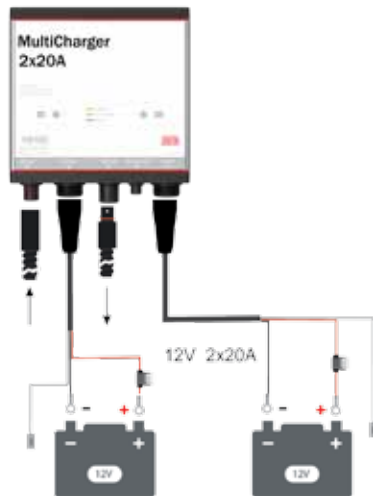
## ACCESSORIES:

Item No:	
706483	2m Charging cable
706484	4m Charging cable
706485	6m Charging cable
705294	5m Remote panel
705295	10m Remote panel
705296	20m Remote panel
705297	25m Remote panel
705463	Connection Schuko - PlugIn



# MultiCharger 2x20A

DEFA MultiCharger 2x20A is a powerful and compact charger that is easily installed in all types of vehicles. It is designed to handle any conditions. To make the system more flexible DC cables in desired lengths are ordered separately. Cables available in 2, 4 and 6 meters.



## MultiCharger 2x20A **NEW!**

Item.No.	705900
Mains Voltage - VAC/Hz	230/50-60
Operating temperature - oC	-35 +50
Charging Voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Charging Current- A	2x20
Battery size- Ah	2x250
IP-rate	44
Weight - kg	3
Height/Width/Depth- mm	182x190x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

## ACCESSORIES:

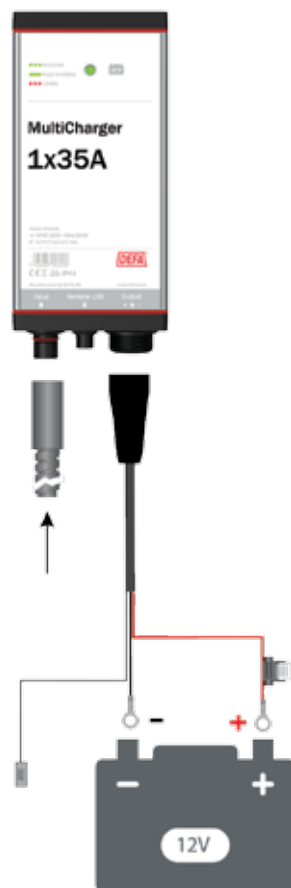
Item No:	
706483	2m Charging cable
706484	4m Charging cable
706485	6m Charging cable
705162	5m Remote panel
705163	10m Remote panel
705164	20m Remote panel
705165	25m Remote panel
705463	Connection Schuko - PlugIn

# MultiCharger 1x35A

DEFA MultiCharger 1x35A is a small and powerful charger for use in all types of vehicles and in any conditions. To make the system more flexible, cables are ordered separately in desired lengths.



12V SYSTEM



12V 1x35A

## MultiCharger 1x35A

Item No. with PlugIn 1x35A	704600
Mains voltage - VAC/Hz	230/50-60
Ambient temperature [oC]	-35 +50
Charging voltage* S1 [VDC]	14,4
Float voltage S2 [VDC]	13,5
Max charging current [A]	35
Recommended battery max[Ah]	1000
IP rate [IP]	44
Weight [kg]	2
1x35A Height/Width/Depth - mm	200x98x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

## ACCESSORIES:

Item No:	
705099	2m Charging cable
705147	4m Charging cable
705159	6m Charging cable
705160	8m Charging cable
705294	5m Remote panel
705295	10m Remote panel
705296	20m Remote panel
705297	25m Remote panel
705463	Connection Schuko - PlugIn



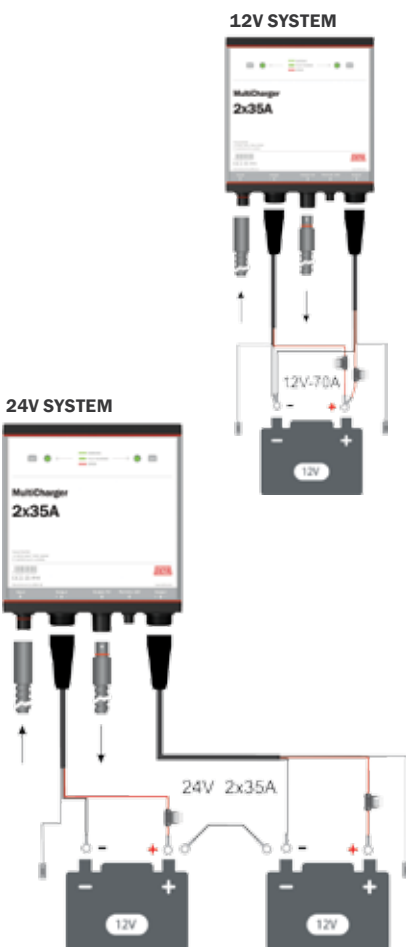
# MultiCharger 2x35A

DEFA MultiCharger 2x35A is a small and powerful charger for use in all types of vehicles and in any conditions. To make the system more flexible, cables are ordered separately in desired lengths.



## MultiCharger 2x35A

Item no. with PlugIn 2x35A	704700
Mains voltage - VAC/Hz	230/50-60
Ambient temperature [oC]	-35 +50
Max charging voltage* S1 [VDC]	14,4
Float voltage S2 [VDC]	13,5
Max charging current [A]	2x35
Recommended battery max[Ah]	2x1000
IP rate [IP]	44
Weight [kg]	4
2x35A Height/Weight/Depth - mm	200x190x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2



## ACCESSORIES:

Item No:	
705099	2m Charging cable
705147	4m Charging cable
705159	6m Charging cable
705160	8m Charging cable
705162	5m Remote panel
705163	10m Remote panel
705164	20m Remote panel
705165	25m Remote panel
705463	Connection Schuko - PlugIn

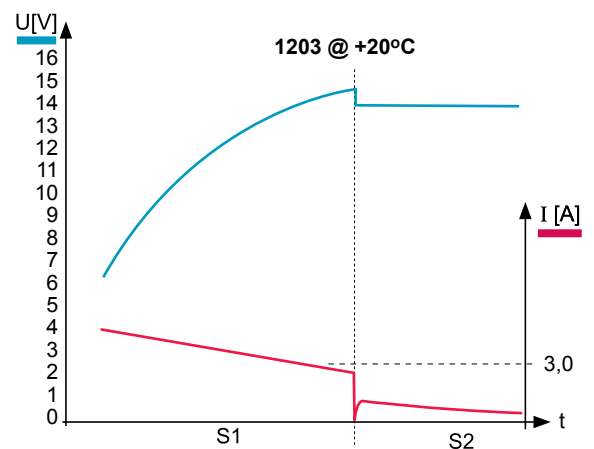
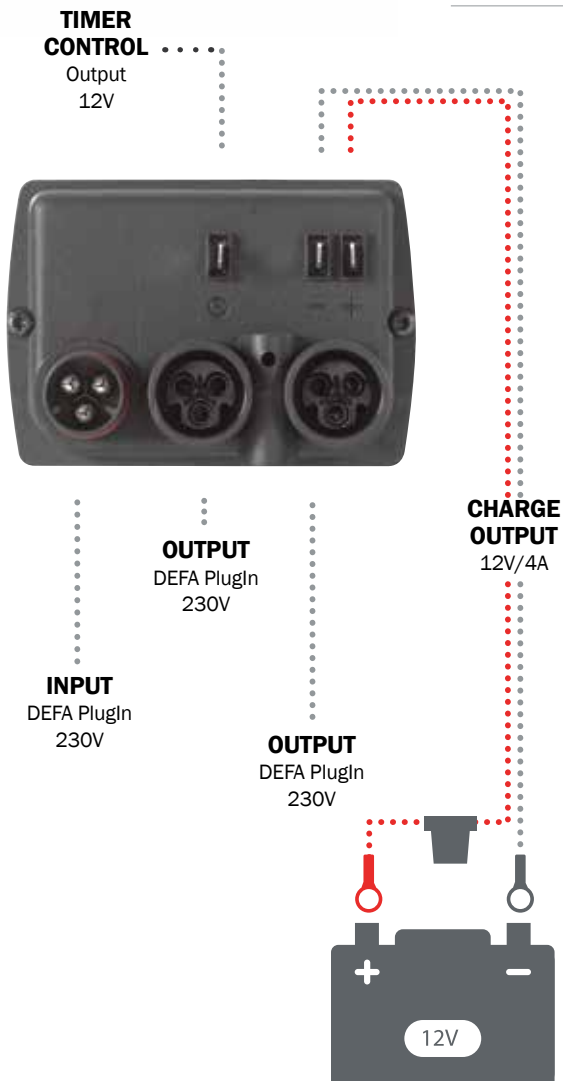
# MultiCharger 1203

DEFA MultiCharger 1203 is a maintenance charger developed for modern battery technology. It extends the lifetime of the battery and has an internal relay function for controlling engine and interior heaters. It is primarily developed for use in private cars and smaller trucks.



## MultiCharger 1203 with relay

Item No.	450009
Collection box - pcs.	8
Rated output - W	45
Voltage - V / Charging current - A	12/3
Charging voltage boost mode - V	> 14,7
Float voltage - VDC	13,7
Height/Width/Depth - mm	80/70/45
Weight - gr	252
Fuse - A	5
IP rate	44



S1: Charging - Charges with 3A until voltage reaches 14,7V.  
S2: Float voltage 13,7V.

# MultiCharger 1204

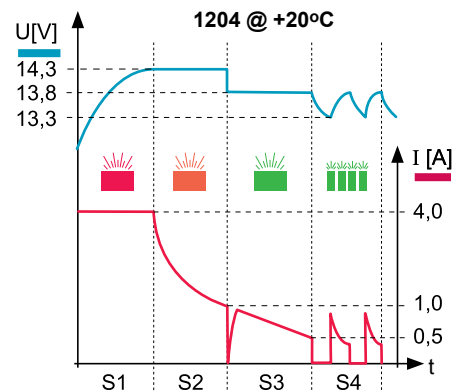
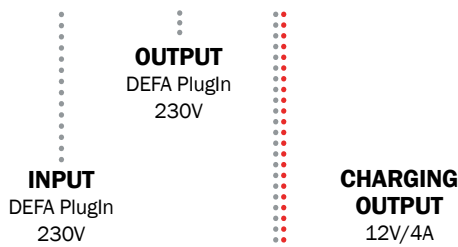
DEFA MultiCharger 1204 is a maintenance charger developed for modern battery technology. The MultiCharger keeps your battery fully charged, and extends its lifespan.

If you want to make sure that your battery is always fully charged, and that your car always starts, even on the coldest days, then DEFA MultiCharger 1204 is the solution for you.



## MultiCharger 1204

Item No.	450020
Collection box - pcs	8
Rated output - W	65
Voltage - V / Charging current - A	12/4
Charging voltage boost mode - V	> 14,3
Float voltage - VDC	13,3 - 13,8
Height/Width/Depth - mm	103/84/42
Weight - gr	260
Fuse - A	7,5
IP rate	65



- S1: *Boost Mode - Charges with 4A until voltage reaches 14,3V or for max. 24 hours. LED shows red.*
- S2: *Top charging - At 14,3V until charging current is below 1,0A or for max. 10 hours. LED shows orange.*
- S3: *Maintenance charging - At constant voltage 13,8V until charging current is lower than 0,5A or for max. 48 hours. LED shows green.*
- S4: *Pulse maintenance charging - The voltage pulsates between 13,3V and 13,8V with low charging current. LED shows green.*

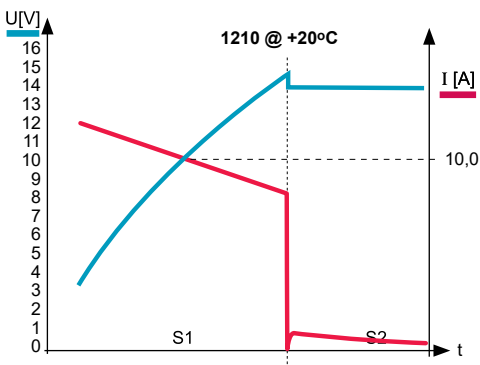
# MultiCharger 1210

MultiCharger 1210 is a 12V/10A battery charger which can be used for transportation vehicles, caravans, tractors, construction equipment and generators.



## MultiCharger 1210

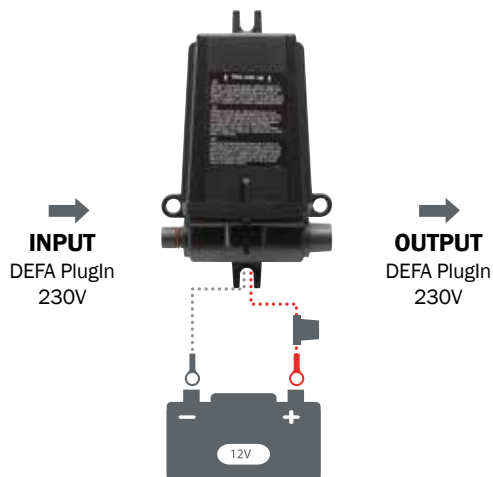
Item No.	450011
Collection box - pcs	8
Rated output - W	125
Voltage - V / Charging current - A	12/10
Charging voltage boost mode - V	> 14,7
Float voltage - VDC	13,7
Height/Width/Depth - mm	205/120/65
Weight - gr	505
Fuse - A	15
IP rate	44



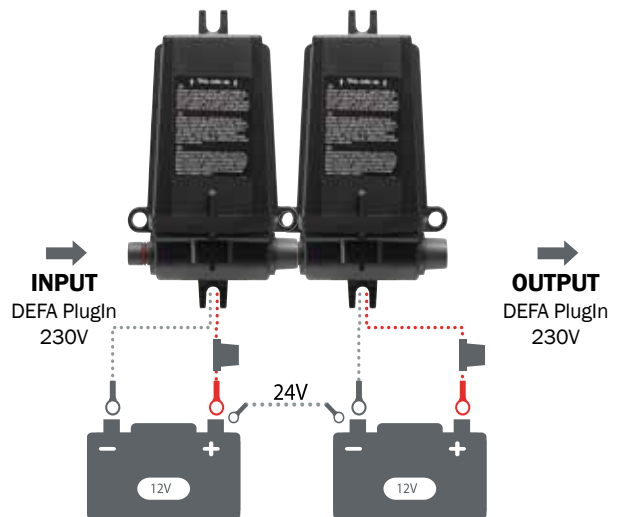
The charging progress shows Voltage (U) over time (t) and current (I) over time (t). The LED indicator, which is placed at the top of the front of the charger, indicates the status of the different charging steps (S1,S2...).

The LED indicates:  
 S1 - Red: Main charging  
 S2 - Green: Float voltage

### 12V SYSTEM



### 24V SYSTEM



# ChargerKits 1204 and 1210

A battery charger keeps your batteries fully charged, extends the its lifespan and ensures that your car starts regardless of weather or temperature. DEFA ChargerKit is available with MultiCharger 1204 or MultiCharger 1210 and the kit includes all necessary cables for easier installation. ChargerKit 1204 and 1210 are particuarly suitable for cars with parking heaters. Choose the ChargerKit 1210 if you appreciate faster charging. Because of the charger's advanced and responsive charging cycle, your battery is charged even when other chargers would fail.



## ChargerKit 1204

Item No.	450030
Collection box - pcs	12
MultiCharger 1204	450020
Cable set 12V	418902
MiniPlug inlet cable 1,5 m	460915
MiniPlug Xtreme connection cable 2,5 m	460955
MiniPlug inlet cable - fitting equipment	418801



## ChargerKit 1210

Item No	450032
MultiCharger 1210	450011
Cable set 12V	418902
MiniPlug inlet cable 1,5 m	460915
MiniPlug Xtreme connection cable 2,5 m	460955
MiniPlug inlet cable - fitting equipment	418801

### QUALITIES

- A highly efficient switch mode and advanced charging profiles prevent damage to the battery
- The charger can therefore be continuously connected
- Temperature compensated charging voltage ensures that the battery is fully charged regardless of the condition of the battery. No risk for overcharging.
- Light indication of charging mode
- The chargers are protected against short circuits and reverse polarity
- Does not harm advanced electronics
- Small dimensions
- Protects the battery from breaking down (sulphating) and extends the batteries lifetime.

DEFA's chargers are all approved by; Safety EN 50081-1, EN 50082-1, EN 60335-1, EN 60 335-2-29.

# ChargerKits 12A and 20A

Chargerkits includes the battery charger and necessary cables. Easily install the DEFA ChargerKit by connecting the DEFA MiniPlug inlet into the front of the car and the connection cable to the nearest mains outlet.



### ChargerKit 1x12A - 706252

MultiCharger 1x12A	705200
MiniPlug - 2,0m	460939
Connection Cable - 5,0m	460921

### ChargerKit 2x12A - 706253

MultiCharger 2x12A	705300
MiniPlug - 2,0m	460939
Connection Cable - 5,0m	460921



### ChargerKit 1x20A - 706930

MultiCharger 1x20A	705800
MiniPlug - 2,0m	460939
Connection Cable - 5,0m	460921

### ChargerKit 2x20A - 706931

MultiCharger 2x20A	705900
MiniPlug - 2,0m	460939
Connection Cable - 5,0m	460921





# RescueCharger 1x12, 1x20, 1x35

DEFA RescueChargers are specifically adjusted to emergency response vehicles which are connected and disconnected several times during a 24-hour period. The charger is suitable for vehicles with battery sizes up to 600Ah. The charger gives a galvanic isolation between net earth and the battery.



## RescueCharger 1x12

Item No. with PlugIn	705600
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	12
Recommended battery max - Ah	150
Height/Width/Depth - mm	138x98x53
Weight - kg	1
IP rate	44



## RescueCharger 1x20

item No. with PlugIn	706200
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	20
Recommended battery max - Ah	250
Height/Width/Depth - mm	182x98x53
Weight - kg	1,5
IP rate	44



## RescueCharger 1x35

Item No. with PlugIn	705000
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	35
Recommended battery max - Ah	600
Height/Width/Depth - mm	200x98x53
Weight - kg	2
IP rate	44

# RescueCharger 2x12, 2x20, 2x35

DEFA RescueChargers are specifically adjusted to emergency response vehicles which are connected and disconnected several times during a 24-hour period. The charger is suitable for vehicles with battery sizes up to 2x600Ah. The charger gives a galvanic isolation between net earth and the battery.



## RescueCharger 2x12

Item No. with PlugIn	705700
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	2x12
Recommended battery max - Ah	2x150
Height/Width/Depth - mm	138x201x53
Weight - kg	2
IP rate	44



## RescueCharger 2x20

Item No. with PlugIn	706300
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	2x20
Recommended battery max - Ah	2x250
Height/Width/Depth - mm	182x190x53
Weight - kg	3
IP rate	44



## RescueCharger 2x35

Item No. with PlugIn	705100
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	14,4
Float voltage - VDC	13,5
Charging current - A	2x35
Recommended battery max - Ah	2x600
Height/Width/Depth - mm	200x190x53
Weight - kg	4
IP rate	44

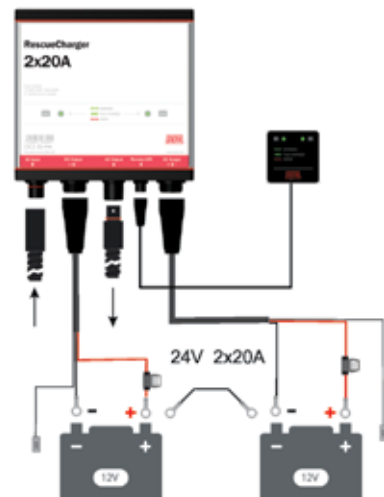
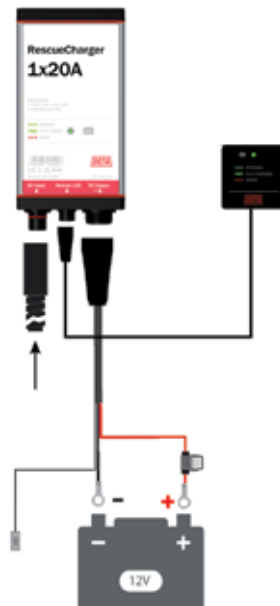
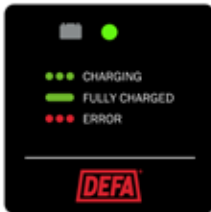
# RescueCharger accessories

Accessory for DEFA RescueChargers consists of charging cables and remote panels with a range of cable lengths as well as a connection from PlugIn to Schuko. Rettbox is also available for mounting the Rescue chargers, see page 64.

## RescueCharger

### ACCESSORIES

Item No.	
706483	2m Charging cable 20A
706484	4m Charging cable 20A
706485	6m Charging cable 20A
705099	2m Charging cable 35A
705147	4m Charging cable 35A
705159	6m Charging cable 35A
715160	8m Charging cable 35A
705294	5m Remote panel 1x20A, 1x35A
705295	10m Remote panel 1x20A, 1x35A
705296	20m Remote panel 1x20A, 1x35A
705297	25m Remote panel 1x20A, 1x35A
705162	5 m Remote panel 2x20A, 2x35A
705163	10m Remote panel 2x20A, 2x35A
705164	20m Remote panel 2x20A, 2x35A
705165	25m Remote panel 2x20A, 2x35A
705463	Connection Schuko - PlugIn



# WorkshopCharger 25A

The new WorkShopCharger 25A from DEFA is a battery charger as well as 13,7V power supply. Its unique display makes every function available with one button access, and allows for easy monitoring of the charging process. It provides continuous current when you need stable voltage to avoid lost data during ECU programming or battery change. It is delivered with cable, a wall bracket and isolated hood for easy storage and use.



<b>WorkShopCharger 25A</b>	<b>NEW</b>
Item No.	706900
Volt	12V Charging / Powersupply 13,7 Volt
Rated voltage AC	220–240VAC, 50–60Hz
Charging voltage	NORMAL: 14.4V/14,7V
Float charging	13,6V
Min battery voltage	2.0V
Max charging current	25A
Back current drain	<1Ah/month
Ambient temperature	-20°C ~ +50°C
Charging types	7 step, fully automatic charging cycle (Analyze/main charge/top charge/analyze/float/sleep/wake Up)
Battery types	All types of 12V lead-acid batteries (WET, MF, Ca/Ca, AGM, EFB and GEL) Start-Stop Batteries
Battery capacity	30-500Ah
Dimensions L/W/H	202x96x53
IP rate	IP20
Weight	2 kg

# WorkshopCharger 35A

DEFA WorkshopCharger 35A is a battery charger as well as 13,7V power supply. Its unique display makes every function available with one button access, and allows for easy monitoring of the charging process. It provides continuous current when you need stable voltage to avoid lost data during ECU programming or battery change. It is delivered with a 3 meter length cable, a wall bracket and isolated hood for simple storage and use.



## WorkshopCharger 35A

Item No.	706400
Volt	12V Charging / Powersupply 13,7 Volt
Rated Voltage AC	220-240VAC, 50-60Hz
Charging voltage	NORMAL: 14.4V/14,7V
Powersupply	13,6V
Min battery voltage	5.0V
Max Charging current	35A
Back current drain	<1Ah/month
Ambient temperature	-20°C ~ +50°C
Charging types	7 step, fully automatic charging cycle (Analyze/main charge/top charge/analyze/float/sleep/wake Up)
Battery types	All types of 12V lead-acid batteries (WET, MF, Ca/Ca, AGM, EFB and GEL) Start-Stop Batteries
Battery capacity	30-600Ah
Dimensions L/W/H	234x96x53
Insulation class	IP20
Weight	2 kg

# SmartCharge 4A and 6A

SmartCharge 4A and 6A are intelligent chargers which makes it easy and safe to charge your batteries. All you have to do is connect the charger to an outlet, connect the clips to your battery, and then press “On”. SmartCharge recognizes which type of battery it is connected to, and charges it accordingly. When you are done, wind it up, click the parts in place and keep it handy. SmartCharge has Powersupply for access to continuous current.

## SmartCharge 4A / 6A

Item No. 4A	701515
Item No. 6A	706060
Height/Width/Depth - mm	210/90/54
Weight- gr	620
IP-rate	65

### EASY TO USE

- One-button solution.
- Backlit user friendly interface and display.
- Adapts automatically to the size (Ah) of your battery.
- A display to easily read the actual power level of your battery.
- Integrated cable storage solution.
- It will never over-charge your battery. Ever.
- Temperature compensated charging cycle.



AWARD FOR DESIGN EXCELLENCE  
NORWEGIAN DESIGN COUNCIL



### POWERSUPPLY

Every so often you need access to continuous current, for instance when changing the battery in your car. With PowerSupply you can avoid leaving the car without power and having to reset every setting in the car later. You can also use PowerSupply to power 12V units such as an icebox or a portable sound system. The PowerSupply function is now available with all SmartCharge versions.

It is activated by pressing and holding the ON button for 5 seconds. The charger will then generate 13.6V, indicated by 5 LED segments lighting from bottom to top.

# SmartCharge 8A and 10A

SmartCharge 8A and 10A are larger and more powerful chargers designed for more rapid charging of larger batteries, such as in a car or boat. SmartCharge has Powersupply for access to continuous current.



## SmartCharge 8A / 10A

Item no 8A	701785
Item no 10A	706161
Height/Width/Depth - mm	235/90/54
Weight - gr	750
IP-rate	65

### CHARGING BATTERIES WITH LOW VOLTAGE

If your battery is running low, then what you need is SmartCharge. It will charge 12V batteries with voltages as low as 2V.

### CHARGES BOTH LARGE AND SMALL BATTERIES

SmartCharge is suitable for batteries from 20 to 250Ah. The charger is only 2,5 cm higher than 4A and 6A, and faster. The higher Ah you choose, the faster your batteries will be charged.



## Which SmartCharge do I need?

SmartCharge version	
SmartCharge 4A	2 -110Ah battery
SmartCharge 6A	10 - 150Ah battery
SmartCharge 8A	20 - 200Ah battery
SmartCharge 10A	30 - 250Ah battery



## Display for promotion of SmartCharge:

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SmartCharge display:

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Item No. 706782

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Fits 8 chargers of any version

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## SmartCharge Accessories

We offer a wide range of accessories for DEFA SmartCharge. These accessories address your everyday need to charge your various devices. Our range of accessories consists of cables, connectors, battery status indicators, and outlets which can be adapted to your every need. For more information, visit [www.defa.com](http://www.defa.com)

### CHARGE CONNECTOR AND POWER OUTLET - SIDE BY SIDE

With an extra DEFA power outlet installed in your boat or vehicle, you can easily charge your mobile phone or power your icebox, and charge your battery at the same time. When your battery needs charging, simply connect your SmartCharge when docking and you have access to 230V. Nothing could be easier.





# SmartCharge accessories



## 12V Battery status indicator

Item No.	701758
Length - mm	48
Cross section - mm <sup>2</sup>	28
IP rate	65



## 12V Charging cable, with ring terminals

Item No.	701762
Cable length - m	1,3
Cross section - mm <sup>2</sup>	1,3
IP rate	65



## 12V Charging cable Showroom ,with clamps

Item No.	701764
Cable length - m	1,3
Cross section - mm <sup>2</sup>	1,3
IP rate	65



## 12V Charging kit

Item No.	701761
Consist of	701760 and 701759

# Inverters with Schuko

Inverters may be used with schuko contacts (standard wall outlets), without the need for a PlugIn system.

The inverters will provide access to 230VAC mains voltage. They deliver pure sinus and are therefore excellent for TV and DVD-equipment as well as laptop computers. The inverters are also equipped with a warning sound should the inverter in case of overloading.



Item No.	Connection	Input - VDC	Output - VAC	Output Power - V, W	Weight - kg	Size - mm
702940	Schuko	12	250	1000	5,2	390x223x101
702950	Schuko	24		1000	5,2	390x223x101
702952	Schuko			1500	6,2	420x223x101

## Inverter control panels

All inverters can be remotely controlled from a separate control panel. This makes it easier to use the inverter when it is not easily accessible.



### Remote control Flush mounted

Item No. 702912	Remote Control for 300/600W inverter, 6 m cable.
Item No. 702913	Remote Control for 1000/1500/2000/2500/3000W inverter, 6m cable
Item No. 704030	Remote Control for 1000/1500/2000/2500/3000W inverter, 10m cable.



### Remote control Surface mounted

Item No. 705115	Remote Control for 300/600W inverter, 6m cable
Item No. 705116	Remote Control for 1000/1500/2000/2500/3000W inverter, 6m cable
Item No. 705117	Remote Control for 1000/1500/2000/2500/3000W inverter, 10m cable

# Inverters with PlugIn

Our high quality inverters are safe to use and make it possible to use electrical equipment in boats and vehicles.



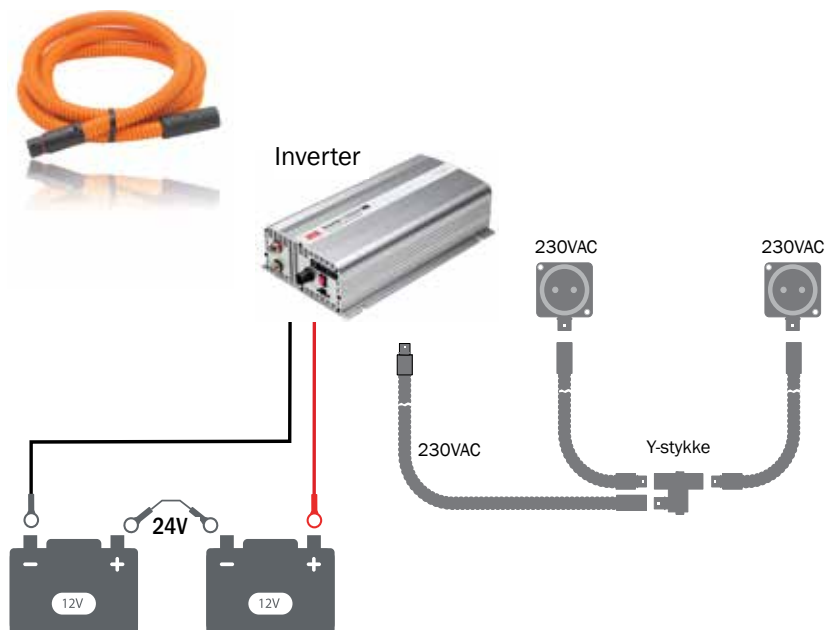
PRODUCTS - INVERTERS

Item no	Connection	Input - VDC	Output - VAC	Output Power- V, W	Weight - kg	Size - mm
702935	PlugIn	12	230	300	2,6	230x151x64
702937	PlugIn			600	3,5	324x170x68
702939	PlugIn			1000	5,2	390x223x101
702941	PlugIn			1500	6,2	420x223x101
702943	PlugIn			2000	6,5	420x289x100
702949	PlugIn	24		1000	5,2	390x223x101
702951	PlugIn			1500	6,2	420x223x101
702953	PlugIn			2000	6,5	420x289x100
703254	PlugIn			2500	8,0	480x289x100
702955	PlugIn			3000	9,8	520x289x100

## PlugIn extension cable (orange)

Item No (0,5m)	704547
Item No (1m)	704548
Item No (1,5m)	704549
Item No (2m)	704550
Item No (3m)	704551
Item No (4m)	704552
Item No (5m)	704553
Item No (8m)	704554
Item No (10m)	704555
Item No (12m)	704556

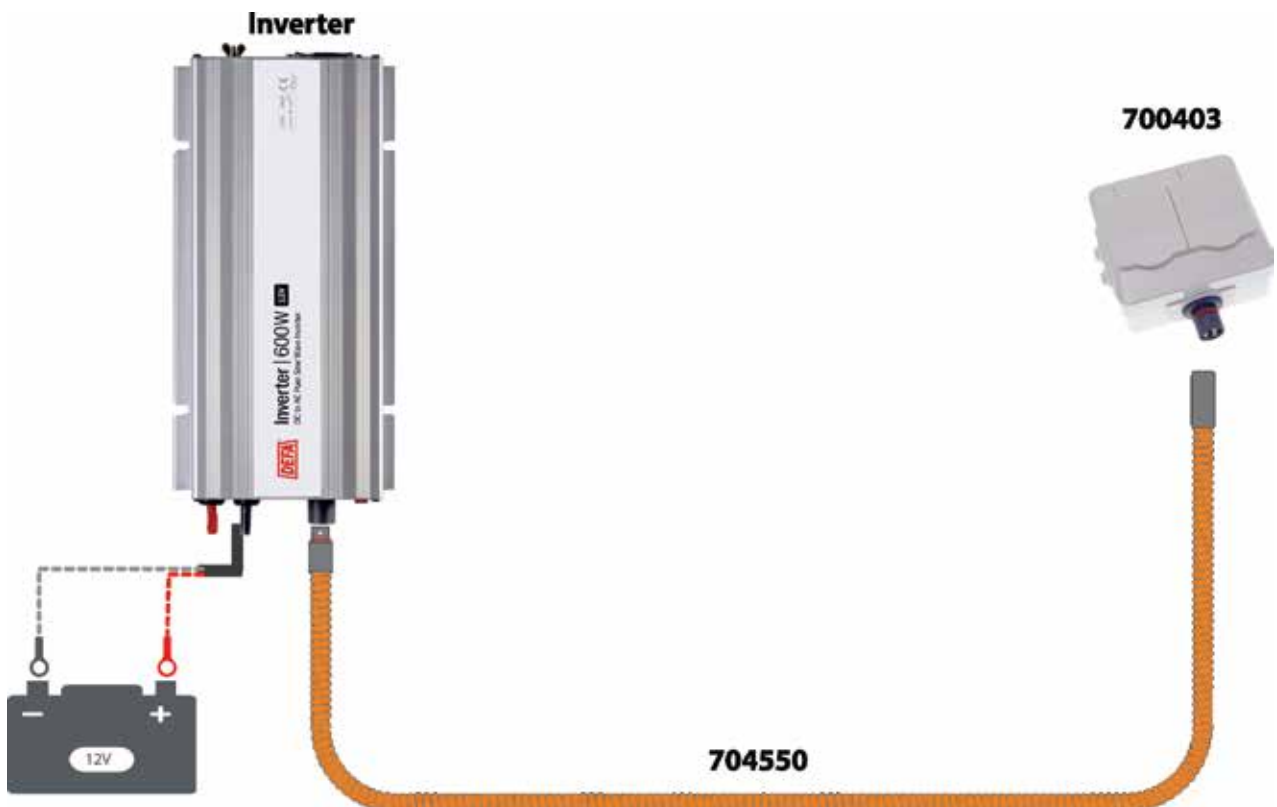
DEFA recommend the use of orange cables to visually identify this as 230V and help avoid the risk of mistakes.



# InverterKit

DEFA inverter kits consist of the inverter, a 2m orange extension cable and a double power outlet. It can easily be expanded, as it is based on the DEFA PlugIn system.

<b>InverterKit</b>					
Item no:	Item name:	Inverter:	Cable:	Outlet:	Remote:
704070	Inverter Kit 1 - 300W/12V	702935	704550	700403	702912
704071	Inverter Kit 2 - 600W/12V	702937	704550	700403	702912
704072	Inverter Kit 3 - 1000W/12V	702939	704550	700403	702913
704073	Inverter Kit 4 - 1500W/12V	702941	704550	700403	702913
704074	Inverter Kit 5 - 2000W/12V	702943	704550	700403	702913
704075	Inverter Kit 6 - 1000W/24V	702949	704550	700403	702913
704076	Inverter Kit 7 - 1500W/24V	702951	704550	700403	702913
704077	Inverter Kit 8 - 2000W/24V	702953	704550	700403	702913
704078	Inverter Kit 9 - 2500W/24V	702954	704550	700403	702913



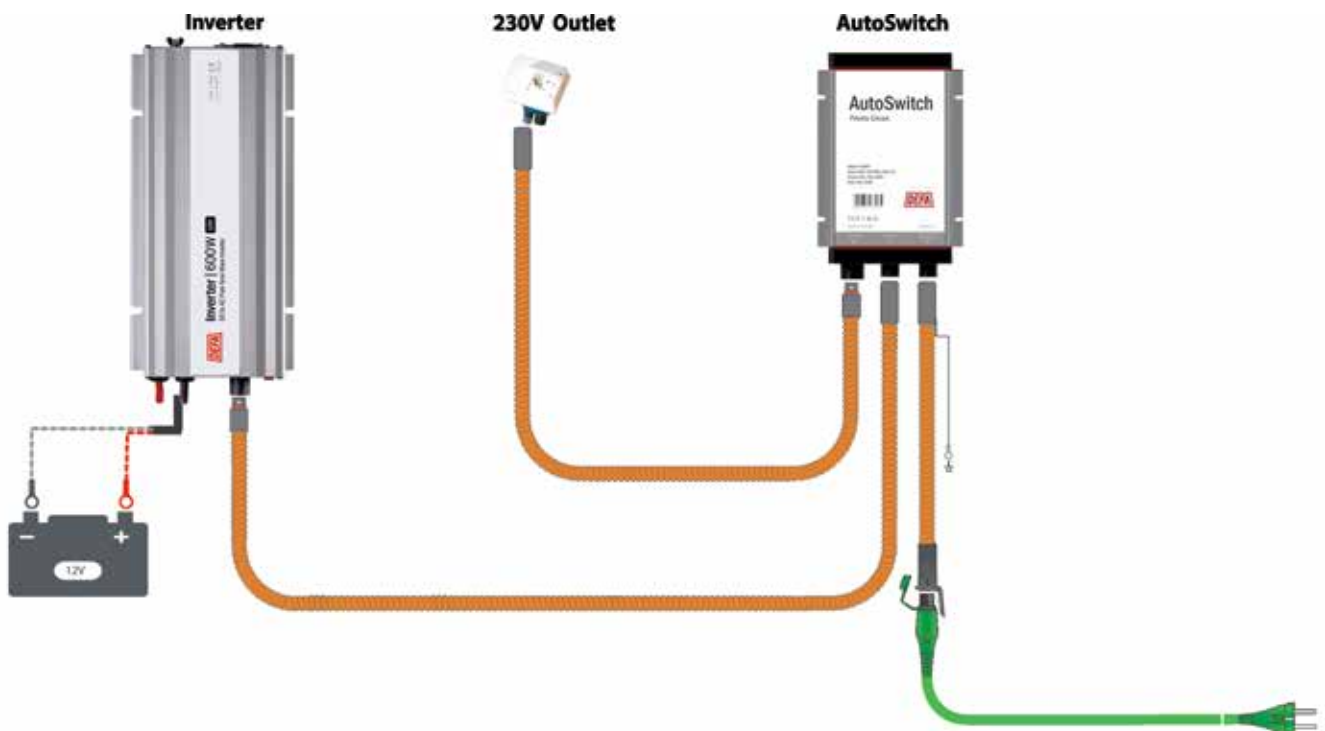
# AutoSwitch

AutoSwitch makes sure that the mains power always has priority when both it and the inverter are connected to the same outlets. This ensures that the batteries are not used to power the outlets when the vehicle is plugged into mains. The AutoSwitch also makes sure that there is no power in the mains inlet when the inverter is in use.



## AutoSwitch

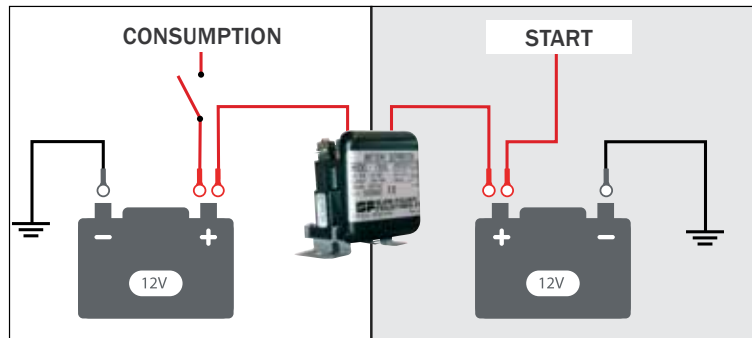
Item no	703697
Input voltage (V/Hz)	230/50-60
Output voltage (VAC)	230
Max current (A)	16
Max power (W)	3680
Fuse (A/V)	16/T250
Height/Width/Depth- mm	58/132/205
IP rate	44



# Battery separators

The battery separator connects two separate battery groups, for instance the start and consumption battery during charging. If the charging is interrupted, the batteries are separated again. The battery separators measure voltage on both battery groups and are activated automatically.

Installation of the separator is simple, and it is an optimal solution for a 2-circuit system that does not require changing the original set-up.



## Battery separator 12V 100A

Item No.	700595
Function	Separator
Continuous current - A	100
Max output - A	400
On function (typical) - V	13,2
Off function (typical) - V	12,8
Height/Width/Depth - mm	76/83/64

Special characteristics: Both batteries will activate the separator.



## Battery separator 12V 200A

Item No.	700596
Function	Separator
Continuous current - A	200
Max output - A	1000
On function (typical) - V	13,2
Off function (typical) - V	12,8
Height/Width/Depth - mm	76/83/64

Special characteristics: Both batteries will activate the separator.



## Battery separator 24V 100A

Item No.	700598
Function	Separator
Continuous current - A	100
Max output - A	400
On function (typical) - V	26,8
Off function (typical) - V	25,7
Height/Width/Depth - mm	76/83/64

Special characteristics: Both batteries will activate the separator.

# EI-centrals

The system can be installed without the need for tools or a certified installer.



### EI-central

Item No. Main inlet cabinet 230VAC/16A	700433
1 DEFA PlugIn inlet, 1 DEFA PlugIn outlet - Schuko outlet - grey	



### EI-central

Item No. Main inlet cabinet 230VAC/16A	700437
1 DEFA PlugIn inlet, 3 DEFA PlugIn outlet - grey	
Item No. Main inlet cabinet 230VAC/16A, 2 DEFA PlugIn inlet	700441
3 DEFA PlugIn outlet, with general switch - grey	

# Inlet cables

DEFA MiniPlug Inlet Cable is adjusted to all new cars. Both flush mounted and bracket mounted versions are equally functional and easy to install. During the development of DEFA MiniPlug we have focused on user friendly design, safety, and ease of installation.



## MiniPlug Inlet cable

### Black

Item No. (1,0m)	460901
Item No. (1,5m)	460915
Item No. (2,0m)	460939
Voltage - VAC	230
Current - A	16
Weight (Length/Weight) - m/kg	1,5/0,410 - 2,0/0,570

The Inlet Plug has MiniPlug "She-connector" with lid in one end and DEFA PlugIn contact in the other end. In addition, it has a ground conductor with cable clip for grounding the system.



## MiniPlug Inlet cable

### Orange

Item No. (1,0m)	704558
Item No. (1,5m)	704559
Item No. (2,0m)	704561
Voltage - VAC	230
Current - A	16
Weight (Length/Weight) - m/kg	1,5/0,410 - 2,0/0,570



## CEE / PlugIn Contact

Item No.	701150
Voltage - VAC	230
Current - A	16
Weight	0,158



## DEFA Rettbox®

Best.nr. Rettbox® 24v without air	706411
Best.nr. Rettbox® cable without air 4m	706412
Best.nr. Rettbox® 24v with air	706413
Best.nr. Rettbox® cable with air 4m	706414

The RETTBOX® is an electromagnetic self-eject system comprising coupler socket and an inlet mounted in a box. The self-ejection of the coupler socket is activated electrically via the vehicle's ignition system. The release mechanism is housed in a compact enclosure fitted into the vehicle. On ignition, a solenoid plunger lifts the socket release latch thus ejecting it from the inlet. Rettbox® is available with DEFA PlugIn for easy installation in a DEFA system.



# Contacts and frames

All 230VAC Schuko connections have DEFA PlugIn connections for single installations. The connections are available in both flush mounted and wall mounted versions.



## Wall outlet - flush mounted single stainless steel

Item No.	700399
Mains voltage - VAC	230
Weight - kg	0,200
IP rate - IP	44



## Wall outlet - on-wall mounted single

Item No.	700401
Mains voltage - VAC	230
Weight - kg	0,100
IP rate - IP	44



## Wall outlet - on-wall mounted double

Item No.	700403
Mains voltage - VAC	230
Weight - kg	0,200
IP rate - IP	44



## Wall outlet - on-wall mounted double with PlugIn, in- and outlet

Item No.	702779
Mains voltage - VAC	230
Weight - kg	0,058
IP rate - IP	44



**Wall outlet - flush mounted single**

Item No. (White)	701317
Item No. (Brown)	701316
Item No. (Grey)	701315



**Frames for wall outlets**

Item No. Single frame for wall outlet - white	701307
Item No. Single frame for wall outlet - brown	701306
Item No. Single frame for wall outlet - grey	701305
Item No. Double frame for wall outlet - white	701310
Item No. Double frame for wall outlet - brown	701309
Item No. Double frame for wall outlet - grey	701308



**Manual summer and winter switch**

Item No.	701123
Height/Width/Depth - mm	67/135/76
Weight - kg	0,200

The summer/winter switch is a manual switch which makes it possible for an engine heater/interior heater to be disconnected during the summer without the battery charger being disconnected.

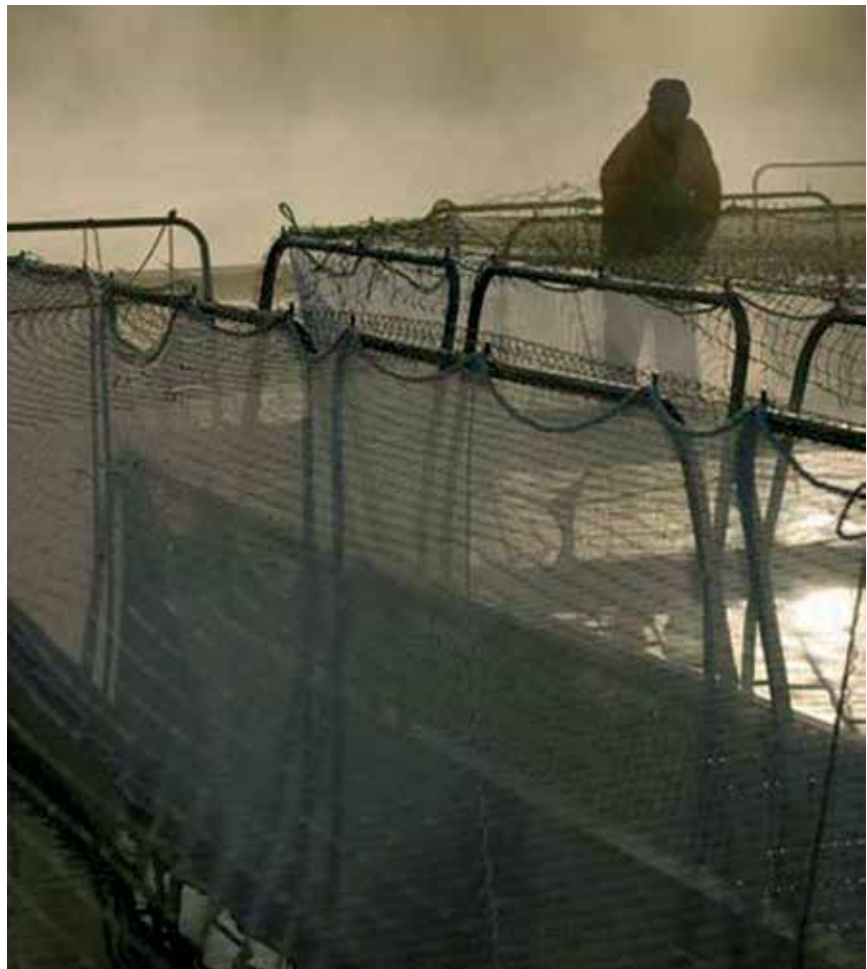
# PowerSupply 15A

DEFA PowerSupply 15A is used as a pure current provider without being connected to batteries. PowerSupply 15A does produce no noise at output (DC), ensuring that it does not interfere with other electronics. PowerSupply 15A is 100% waterproof (IP67) and is therefore very suitable for rough environments such as oil drilling platforms, fish farms, back-up stations in the mountains, etc.



## PowerSupply 15A

Item No.	700493
Mains voltage - VAC/Hz	230/50-60
Charging voltage - VDC	12,8 - 14,7
Maintenance charging - VDC	13,5
Max. Charging current - A	15
Height/Width/Depth - mm	200/115/45
Weight - kg	1,9
IP rate - IP	67



*DEFA PowerSupply is widely used on fish farms as a power source for CCTV surveillance.*

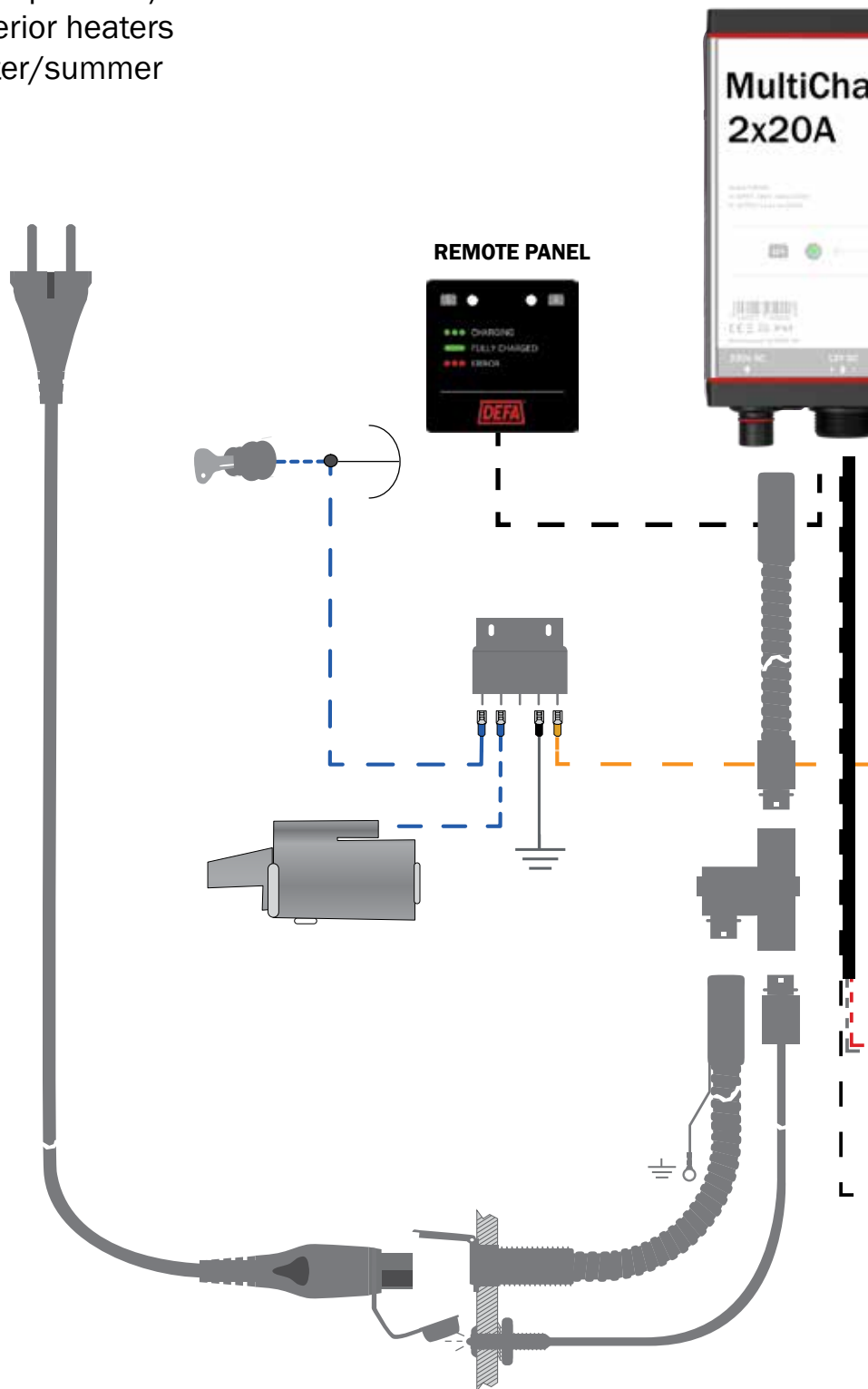
# System overview

The circuit schematic shows temperature/ time control of engine- and interior heaters by using DEFA Futura as a winter/summer switch.

The battery charger will charge independent of winter/summer settings.

In addition, the diagram shows the "starter kill" device function through a separate relay.

Remote light diode signals the charging status of two batteries with red, yellow or green LED light.



**BATTERY CHARGER**



**CONTROL UNIT**



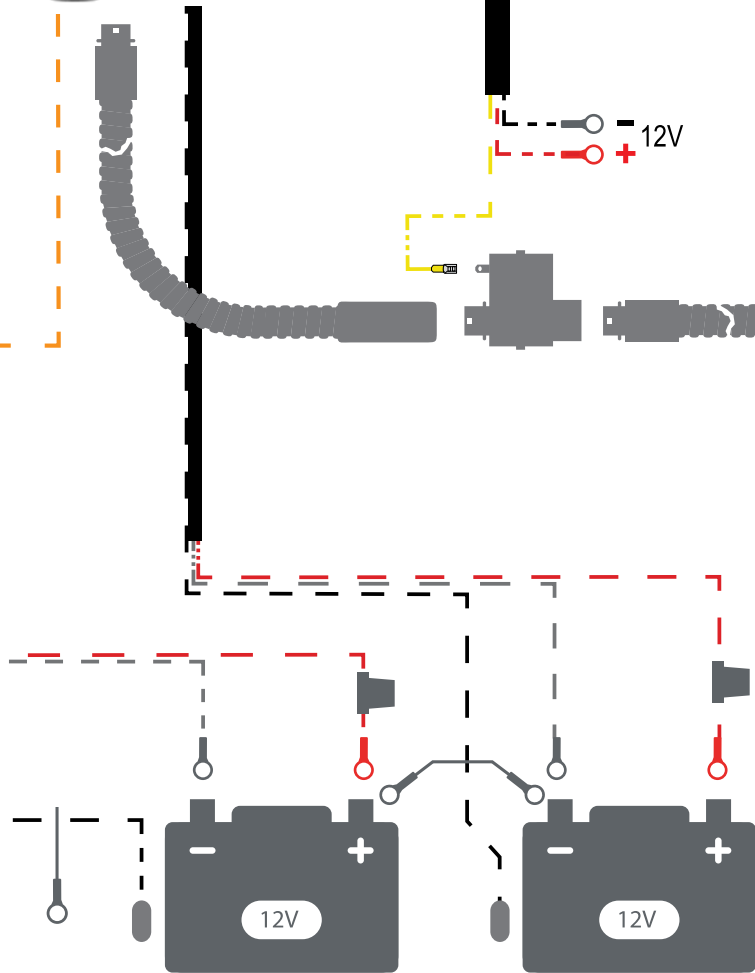
12V  
+



**INTERIOR HEATER**



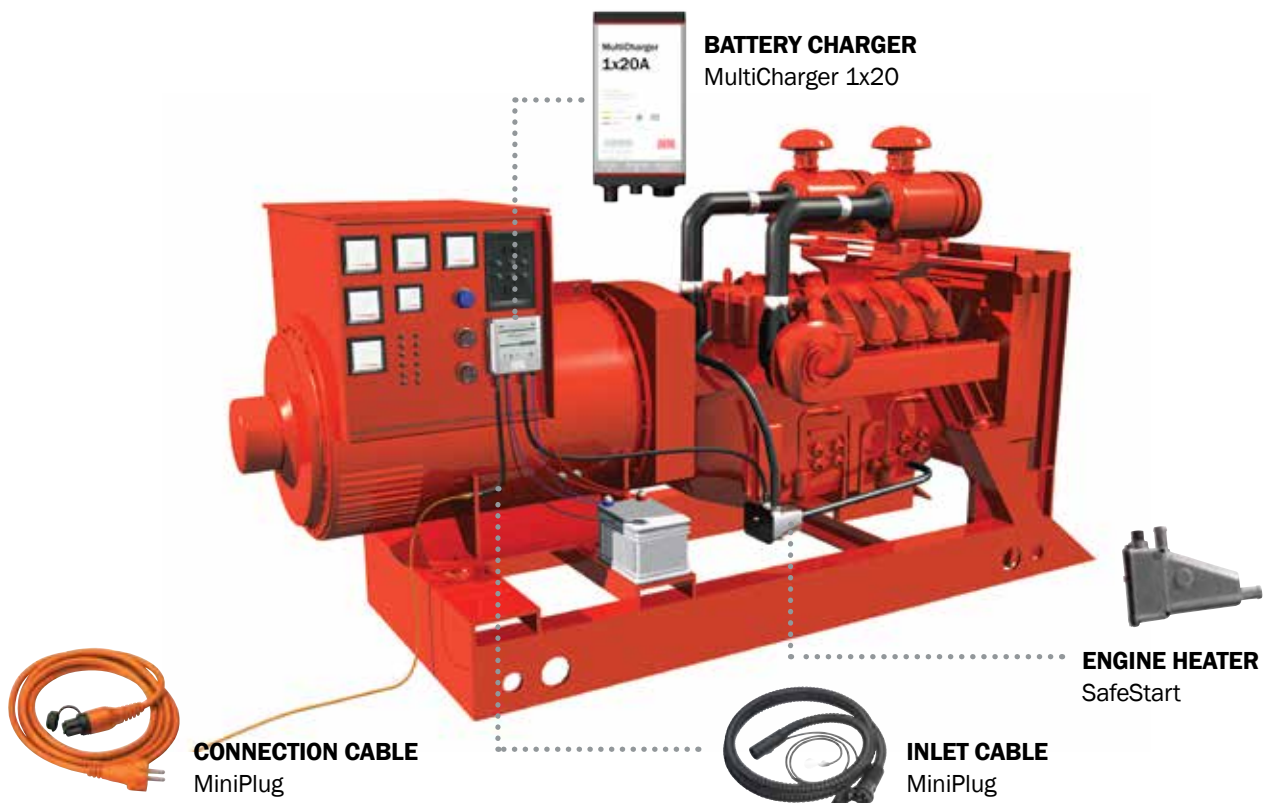
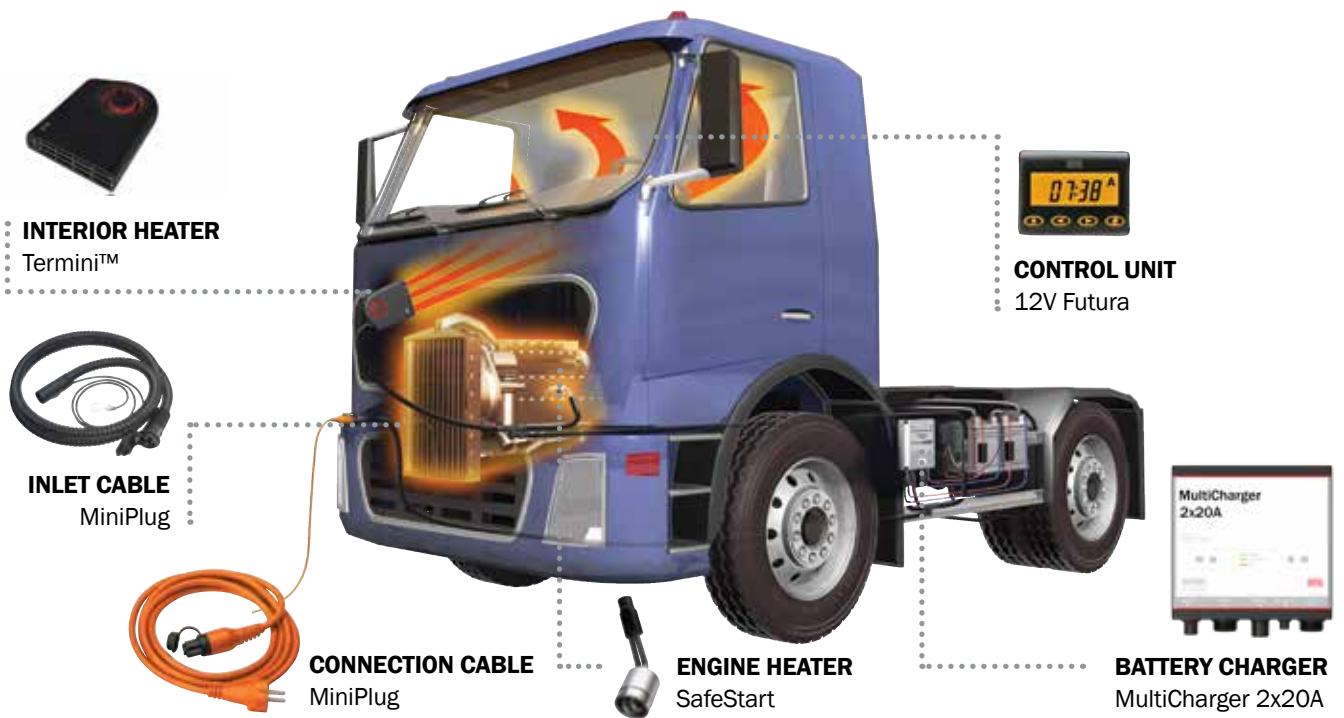
**ENGINE HEATER**



# Trucks and GenSet

The DEFA Charging system is developed with the intention of simplifying installations of battery chargers in cars, trucks, buses, tractors and construction equipment.

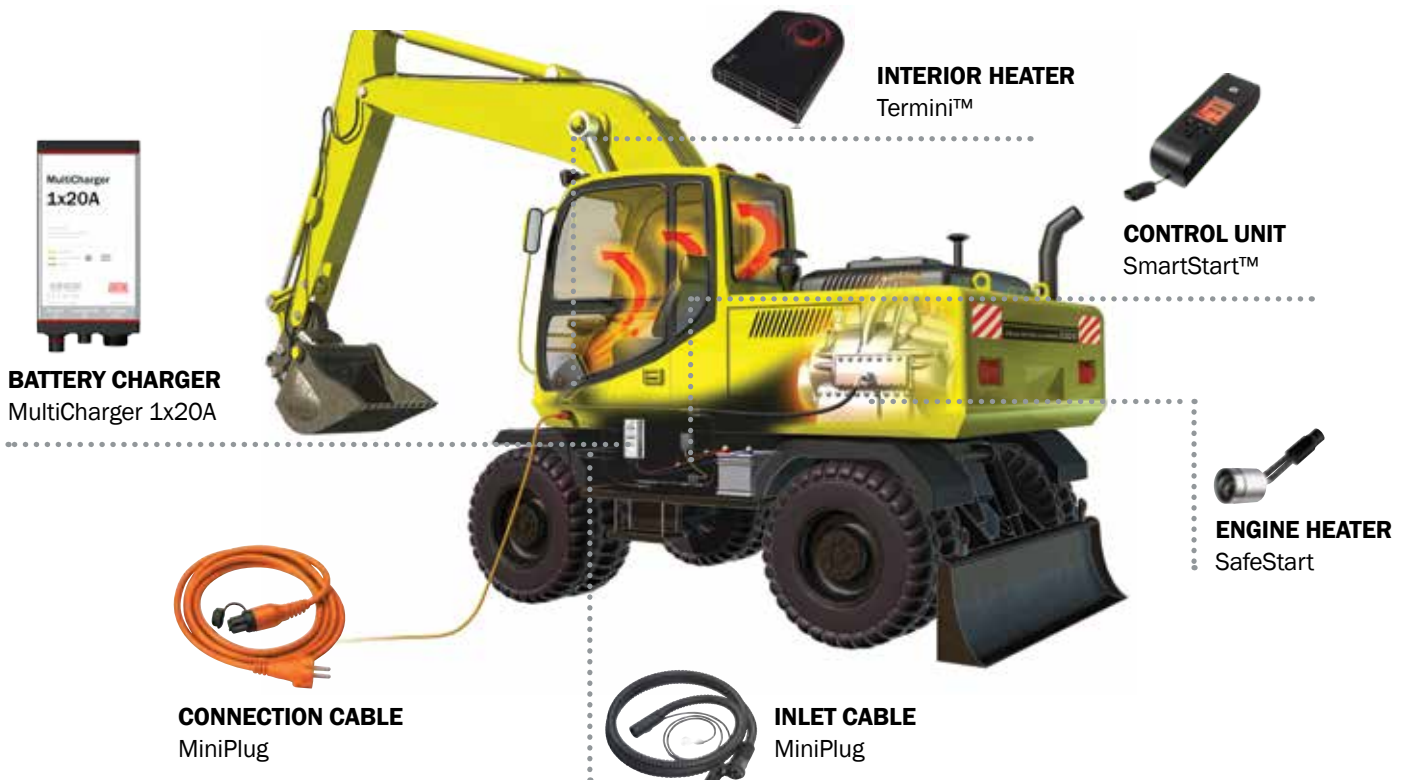
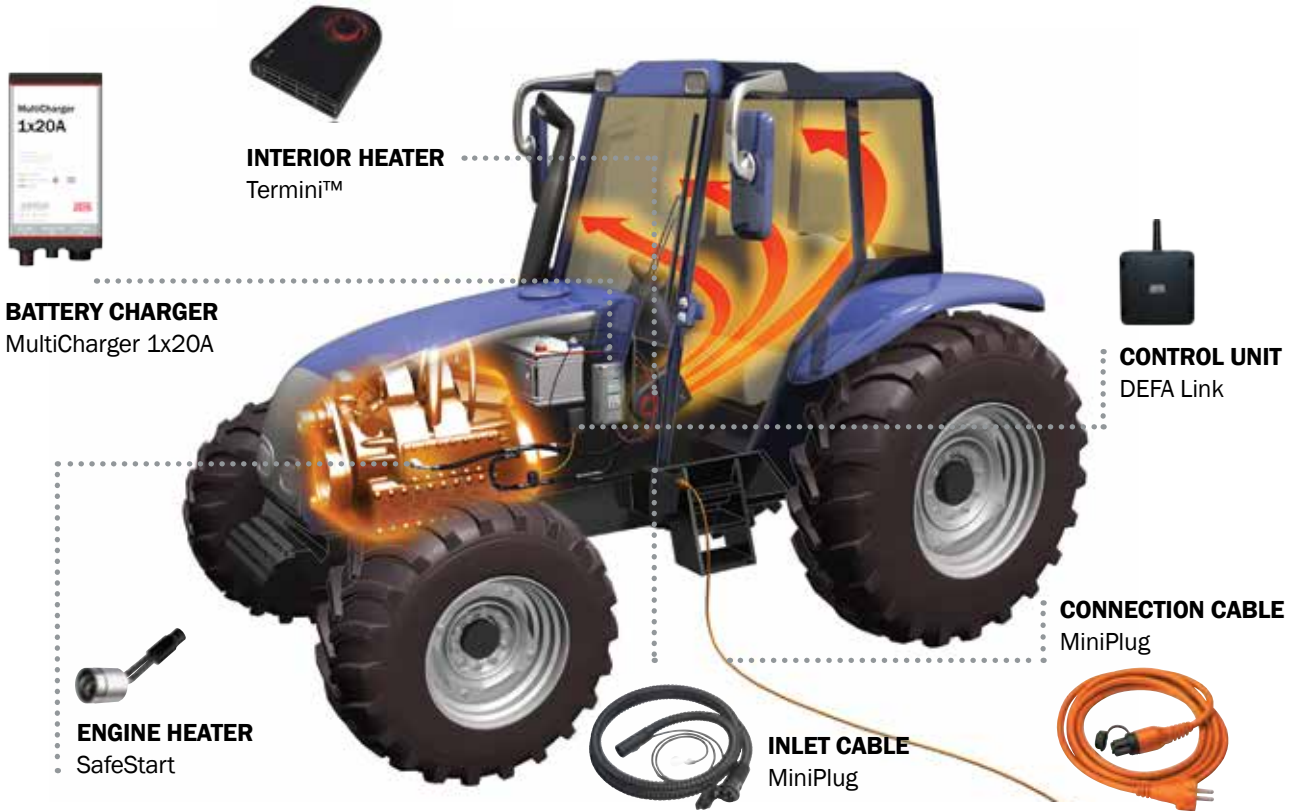
The system eases and enables connections with DEFA PlugIn cables, and eliminates the need for tools. This means that the system can be installed without assistance from a certified installer,.



# Agriculture and Construction

The DEFA charging system is simple, reliable and durable.

All cables and connectors are waterproof. DEFA PowerSystems is a module based system which makes it easy to expand the system with additional components, such as engine and interior heaters.



# Bus

In addition to charging and preheating of the engine and cabin, an inverter which provides 230VAC is necessary. 230VAC is used for powering laptops, charging mobile phones etc.







**Interior heater  
Termini™**



**Futura  
12V Control unit**



**PlugIn Y-connector  
Expander connector**



**Extension Cable  
DEFA PlugIn**



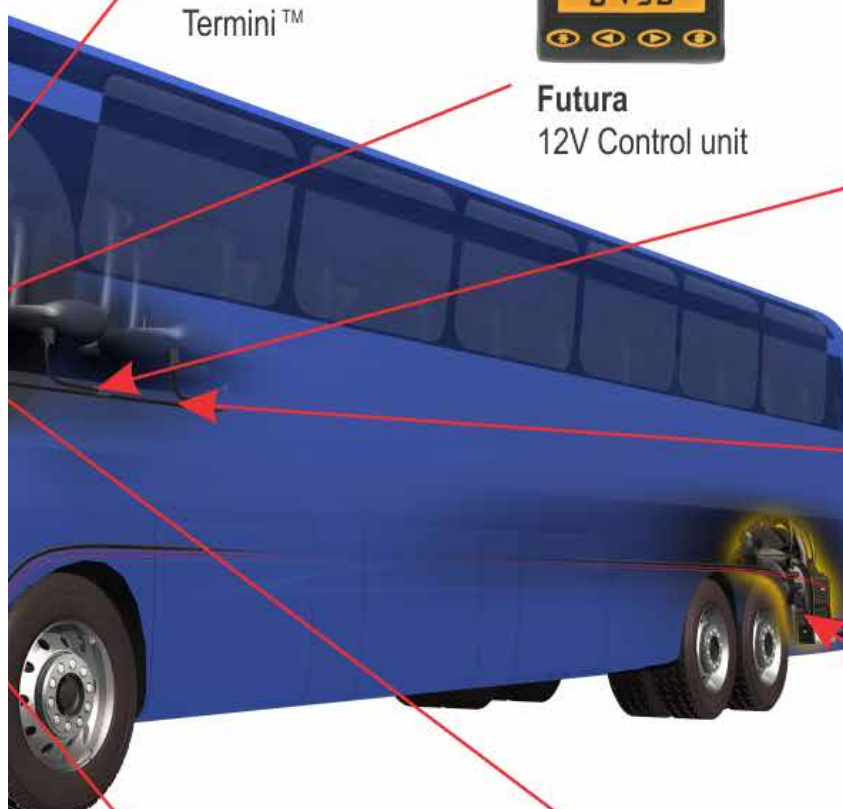
**Engine Heater  
SafeStart**



**Power outlet  
Schuko - PlugIn**



**Inverter**  
From 12V or 24V to 230VAC



# Fire engine

DEFA RescueCharger has a specialized charging profile for emergency response vehicles.



**CONTROL UNIT**  
12 V Futura



**INLET CABLE**  
MiniPlug



**CONNETION CABLE**  
Miniplug



**NEW!** DEFA PlugIn system for Rescue can also use Rettbox connector, see page 64



**REMOTE LED**  
Charge indicator





**INTERIOR HEATER**  
Termini



**SINGLE SCHUKO OUTLET**  
PlugIn



**ENGINE HEATER**  
DEFA Safestart



**BATTERY CHARGER**  
RescueCharger 2x20A



**INVERTER**  
From 12V or 24V to 230VAC,  
with PlugIn or Schuko

# Ambulance

In addition to charging and preheating the engine and the cabin, an inverter for medical equipment is essential. The inverter delivers 230VAC while driving.



**REMOTE LED**  
Charge indicator



**CONTROL UNIT**  
Futura



**ENGINE HEATER**  
Safestart



**INLET CABLE**  
MiniPlug



**CONNECTION CABLE**  
Miniplug



**NEW!** DEFA PlugIn system for Rescue can also use Rettbox connector, see page 64



**DUAL SCHUKO OUTLET**

PlugIn



**INTERIOR HEATER**

Termini



**INVERTER**

From 12V or 24V to 230VAC,  
with PlugIn or Schuko



**BATTERY SEPARATOR**



**BATTERY CHARGER**

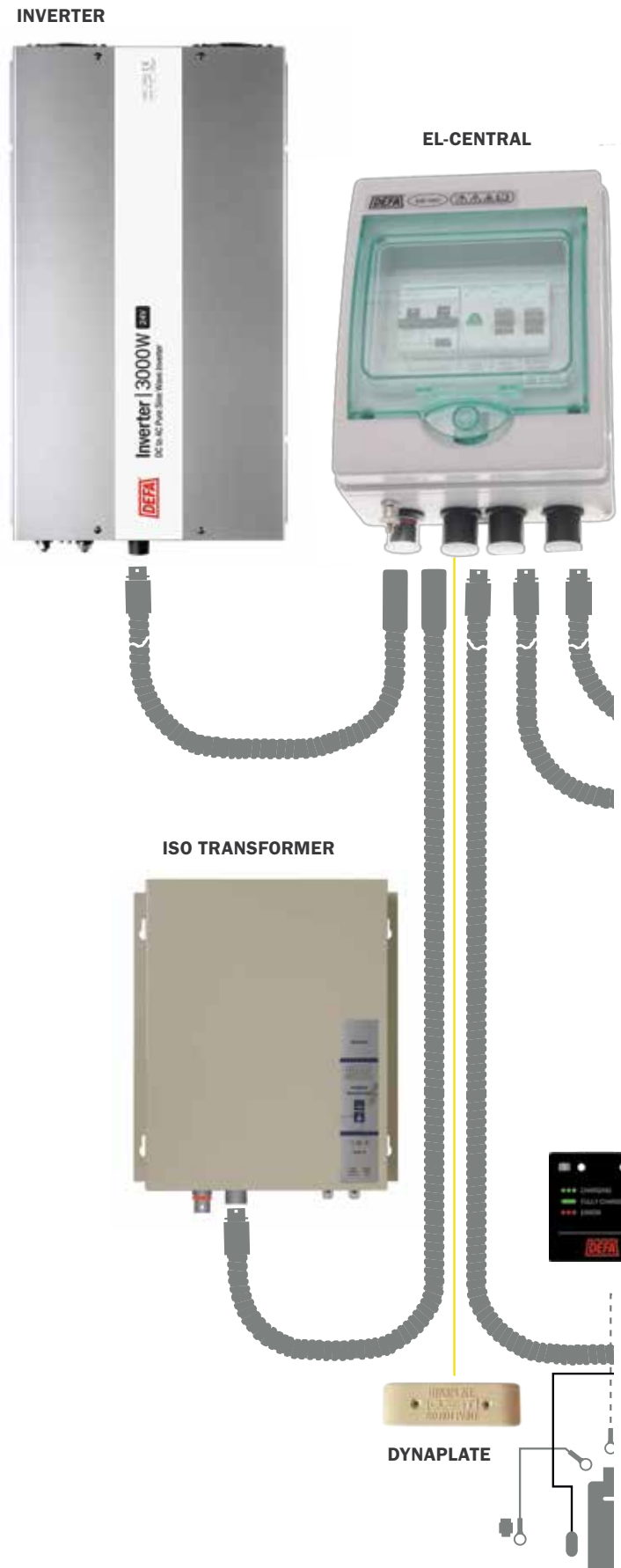
RescueCharger 1x20A

# DEFA Marine - PlugIn ShoreSystem

DEFA charging systems has been developed to ease 230VAC installation and connection. This is made possible by splash proof PlugIn connectors and fitted cables.

The system eliminates need for tools for connection, which means the system can be installed without assistance from a certified installer. The system is very simple, reliable and durable.

There are different functional demands for boat installations. In addition, the boat system features a distribution box. This contains fuses, earth leakage circuit breakers and galvanic isolators to reduce the risk of galvanic corrosion and earth leakage from shore power. The best way to protect against galvanic corrosion is to use an ISO transformer. DEFA charging system is module-based, facilitating the addition of other functions (e.g. engine heaters) and auxiliary equipment.



WALL OUTLET



CONTROL UNIT



12V



INTERIOR HEATER

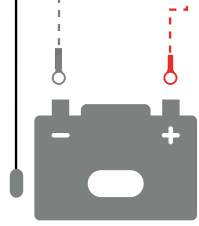
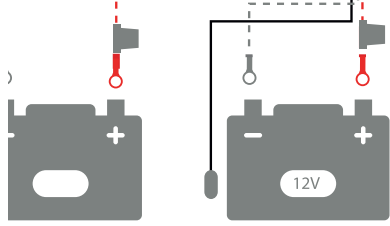
BATTERY CHARGER



CHARGER INDICATOR



ENGINE HEATER



# MarineCharger 1x12A

DEFA MarineCharger 1x12A is a battery charger made for permanent installation in all types of boats. It is well suited for all lead/acid batteries (AGM,GEL, EFB, Start&Stop) up to 150Ah. With the DEFA Plugin connectors, both input and output, this charger integrates perfectly into the rest of the DEFA system.

The charger is delivered with 2 meter fixed cable including temperature sensors.



## MarineCharger 1x12A

Artikkelnummer	702400
Nettspenning [VAC]	230
Temperaturområde [°C]	-35 +50
Ladespenning* S1 [VDC]	14,4
Vedlikehold S2 [VDC]	13,5
Strøm maks. [A]	12
Anbefalt batteri maks. [Ah]	150
Tetthetsgrad [IP]	44
Vekt [kg]	1
Mål [mm] (H,B,D)	138x98x53
Godkjenninger	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

\* Temperaturkompensert ca 5,0 mV/oC/celle. Ref. 25 oC.



# MarineCharger 2x12A

DEFA MarineCharger 2x12A is a battery charger made for permanent installation in all types of boats. It is well suited for all lead/acid batteries (AGM,GEL, EFB, Start&Stop) up to 2x150Ah. With the DEFA Plugin connectors, both input and output, this charger integrates perfectly into the rest of the DEFA system.

The charger is delivered with 2 meter fixed cable including temperature sensors.



## MarineCharger 2x12A

Artikkelnummer	702500
Nettspenning [VAC]	230
Temperaturområde [°C]	-35 +50
Ladespenning* S1 [VDC]	14,4
Vedlikehold S2 [VDC]	13,5
Strøm maks. [A]	2x12
Anbefalt batteri maks. [Ah]	2x150
Tetthetsgrad [IP]	44
Vekt [kg]	2
Mål [mm] (H,B,D)	138x201x53
Godkjenninger	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

\* Temperaturkompensert ca 5,0 mV/oC/celle. Ref. 25 oC.

# MarineCharger 1x20A

DEFA MarineCharger 1x20A is a powerful and compact charger that is easily installed in all types of boats. It is designed to handle any conditions. To make the system more flexible, DC cable in the desired length is ordered separately. Cables available in 2, 4 and 6 meters.



## MarineCharger 1x20A **NEW!**

Item No.	706000
Mains Voltage - VAC/Hz	230/50-60
Operating temperature - oC	-35 +50
Charging Voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Charging Current - A	20
Battery size - Ah	250
IP-rate	44
Weight - kg	2
Height/Width/Depth - mm	182x98x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

## ACCESSORIES:

Item No:	
706483	2m Charging cable
706484	4m Charging cable
706485	6m Charging cable
705294	5m Remote panel
705295	10m Remote panel
705296	20m Remote panel
705297	25m Remote panel
705463	Connection Schuko - PlugIn

# MarineCharger 2x20A

DEFA MarineCharger 2x20A is a powerful and compact charger that is easily installed in all types of boats. It is designed to handle any conditions.

To make the system more flexible DC cables in desired lengths are ordered separately. Cables available in 2, 4 and 6 meters.



## MarineCharger 2x20A **NEW!**

Item.No.	706100
Mains Voltage - VAC/Hz	230/50-60
Operating temperature - oC	-35 +50
Charging Voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Charging Current- A	2x20
Battery size- Ah	2x250
IP-rate	44
Weight - kg	3
Height/Width/Depth- mm	182x190x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

## ACCESSORIES:

Item No:	
706483	2m Charging cable
706484	4m Charging cable
706485	6m Charging cable
705162	5m Remote panel
705163	10m Remote panel
705164	20m Remote panel
705165	25m Remote panel
705463	Connection Schuko - PlugIn

# MarineCharger 1x35A

DEFA MarineCharger 1x35A is a small and powerful charger for use in all types of boats, under all kinds of conditions. To make the system more flexible, cables are ordered separately in required lengths.



## MarineCharger 1x35A

Item No. with PlugIn 1x35A	704800
Mains voltage - VAC/Hz	230/50-60
Ambient temperature - oC	-35 +50
Charging voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Max charging current - A	35
Recommended battery max - Ah	600
IP rate - IP	44
Weight - kg	2
Height/Width/Depth - mm	200x98x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2

## ACCESSORIES:

Item No:	
705099	2m Charging cable
705147	4m Charging cable
705159	6m Charging cable
705160	8m Charging cable
705294	5m Remote panel
705295	10m Remote panel
705296	20m Remote panel
705297	25m Remote panel
705463	Connection Schuko - PlugIn

### 12V SYSTEM



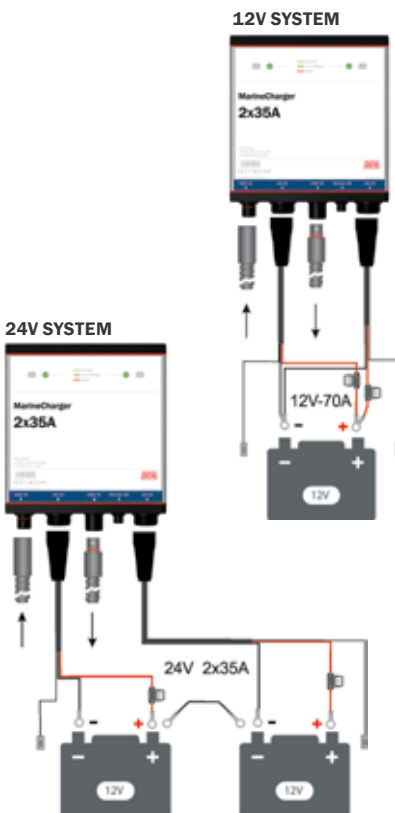
# MarineCharger 2x35A

DEFA MarineCharger 2x35A is a small and powerful charger for use in all types of boats, under all kinds of conditions. To make the system more flexible, cables are ordered separately in required lengths.



## MarineCharger 2x35A

Item no. with PlugIn 2x35A	704900
Mains voltage - VAC/Hz	230/50-60
Ambient temperature - °C	-35 +50
Max charging voltage* S1 - VDC	14,4
Float voltage S2 - VDC	13,5
Max charging current - A	2x35
Recommended battery max - Ah	2x600
IP rate - IP	44
Weight - kg	4
Height/Weight/Depth - mm	200x190x53
Certifications:	EN60335-1, EN60335-2-29, EN55014-1, EN55014-2, EN61003-3/2



## ACCESSORIES:

### Best.nr.

705099	2m Charging cable
705147	4m Charging cable
705159	6m Charging cable
705160	8m Charging cable
705162	5m Remote panel
705163	10m Remote panel
705164	20m Remote panel
705165	25m Remote panel
705463	Connection Schuko - PlugIn

# Boat packages

There are three different boat packages to choose from. Each package can easily be installed without the need for an electrician. Chargers are bought separately, as this choice depends on the size and number of battery banks in the boat. The system is rated for 16A and can easily be expanded using the DEFA PlugIn system.



## Boat package 1

Item No.	706272
Shore power cable 10m, 2,5mm <sup>2</sup> -DEFA MiniPlug - CEE	706285
Adapter CEE2166 Male - Schuko Female - yellow - 1 pcs	700574
Inlet cable 1,5m - 1 pcs	701099
EI-central 230VAC - 1 pcs	700433
Extension cable 1,0m - 1 pcs	460803
Bag for shore power system - 1 pcs	701097





**Boat package 2**

Item No.	701183
Shore power cable 25m, 2,5mm <sup>2</sup> CEE2166 Male - yellow	700577
Adapter Schuko Male CEE 2166 Female - yellow - 1 pcs	700574
Inlet cable 1,5m - 1 stk	700459
EI-central 230VAC/16A - 1 pcs	700437
Extension cable 1,0m - 2 pcs	460803
Extension cable 2m - 3 pcs	460804
Wall outlet, single - 1 pcs	700401
Bag for shore power system - 1 pcs	701097



**Boat package 3**



Item No.	706274
Shore power cable 10m, 2,5mm <sup>2</sup> - IP67 - DEFA MiniPlug - CEE	706288
Adapter CEE2166 Male - Schuko Female - yellow - 1 pcs	700574
Inlet cable 0,6m, IP67 - 1 pcs	701821
EI-central 230VAC - 1 pcs	700437
Extension cable 2,0m - 3 pcs	460804
Wall outlet single - 1 pcs	700401
Bag for shore power system - 1 pcs	701097



# Inlet and shore power cables



## Inlet stainless steel

Item No. Inlet stainless steel	700578
Voltage - VAC	230
Current - A, max.	16
IP rate	67



## Inlet stainless steel

Item No. with DEFA PlugIn, Inlet stainless steel	700459
Voltage - VAC	230
Current - A, max.	6
IP rate	67



## Shore power cable - for Item No. 700578/700459

Item No.	700577
Voltage - VAC	230
Current - A, max.	16
Dimensions - mm <sup>2</sup> - m	2,5 - 25
IP rate	67



## Main adapter

Item No. adapter schuko male/CEE female - yellow	700574
Item No. adapter schuko female/CEE male - yellow	701096
Voltage - VAC	230
Current - A, max.	16



## Inlet MiniPlug

Item No. - m - colour	701098 - 0,6 - chrome
Item No. - m - colour	701099 - 1,5 - chrome
Item No. - m - colour	701100 - 3,0 - chrome
Voltage - VAC	230
Current - A, max.	16
Weight - gr	915/410 - 939/570
Test and approval	EN 50066-, EN 60309-1



## Shore power cable 2,5mm<sup>2</sup> - for Inlet MiniPlug

Item No. with MiniPlug, 5,0 m	706284
Item No. with MiniPlug, 10,0 m	708285
Item No. with MiniPlug, 15,0 m	708286
Item No. with MiniPlug, 25,0 m	708287
Voltage - VAC	230
Current - A, max.	16
Weight - gr	840/1565/2260/3745
Length - m	5,0/10,0/15,0/25,0
Test and approval	EN 50066-1, EN 60309-1



# PlugIn extension cables



## Inlet, stainless steel IP67

Item No. - m - colour	701821 - 0,6 - krom
Item No. - m - colour	701822 - 1,5 - krom
Item No. - m - colour	701823 - 3,0 - krom
Voltage - VAC	230
Current - A, max.	16
Weight - gr	915/410 - 939/570
Test and approval	EN 50066-, EN 60309-1



## Shore power cable 2,5mm<sup>2</sup> - for IP67 Inlet

Item No. with MiniPlug, 10,0 m	706288
Item No. with MiniPlug, 15,0 m	706289
Item No. with MiniPlug, 25,0 m	706290
Voltage - VAC	230
Current, max. - A	16
Weight - gr - m	1565/2260/3745 - 10,0/15,0/25,0
Test and approval	EN 50066-1, EN 60309-1



## Bag for shore power cable

Item No.	701097
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## PlugIn extension cables

Item No. black	Item No. orange	Length
460802	704547	0,5 m
460803	704548	1,0 m
460843	704549	1,5 m
460804	704550	2,0 m
460844	704551	3,0 m
460846	704552	4,0 m
460809	704553	5,0 m
460847	704554	8,0 m
460851	704555	10,0 m
460850	704556	12,0 m

Voltage 230 VAC, max. current 16A, IP 44.  
Test and approval EN 50066 -, EN 60309-1



## LED Indicator kit

Item No.	460881
Mains voltage - VAC	110-240
Current, max. - A	16
IP rate, PlugIn/LED	44/67

# PlugIn branches and contacts

The DEFA relay connector is adapted to DEFA PlugIn and used for controlling the engine and interior heater, together with DEFA control units. It can also be used for separate control of engine and interior heater together with DEFA SmartStart. At branching, use T- or Y- connectors.



## PlugIn Relay connector

Item No. 12V	701445
Item No. 24V	701447
Range of use °C	-40 / +80
Height/Width/Depth - mm	61/31/67
Mains voltage - VAC	230/12, 230/24
Current, max. - A	16
Weight - gr	59
Insulation class - cl	II
IP rate	44



## PlugIn Y-connector

Item No.	460853
Height/Width/Depth - mm	53/48/24
Mains voltage - VAC	230
Current, max. - A	16
Weight - gr	23
IP rate	44

DEFA Y-connector is an all-welded connector for connecting the engine and interior heater or the MarineCharger battery charger.



## PlugIn T-connector 90°

Item No.	460831
Height/Width/Depth - mm	42/63/21
Mains voltage - VAC	230
Current, max. - A	16
Weight - kg	0,022
IP rate	44

DEFA T-connector is an all-welded connector for connecting the engine and interior heater or the MarineCharger battery charger.

# El-centrals

The system eliminates the need of tools, and can be installed without assistance from a certified installer.



## El-central

Item No. Main inlet cabinet 230VAC/16A	700433
1 DEFA PlugIn inlet, 1 DEFA PlugIn outlet - Schuko outlet - grey	



## El-central

Item No. Main inlet cabinet 230VAC/16A	700437
1 DEFA PlugIn inlet, 3 DEFA PlugIn outlet - grey	

Item No. Main inlet cabinet 230VAC/16A	700441
2 DEFA PlugIn inlet, 3 DEFA PlugIn outlet, with general switch - grey	



## Dynaplate

Item No. Dynaplate 1,12m <sup>2</sup>	700581
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Item No. Dynaplate 1,86m <sup>2</sup>	700582
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# Wall outlets

All 230VAC Schuko connections have DEFA PlugIn connections for single installations. The connections are available in both flush and wall mounted versions.



### Wall outlet - flush mounted single stainless steel

Item No.	700399
Mains voltage - VAC	230
Weight - kg	0,200
IP rate	44



### Wall outlet - on-wall mounted single

Item No.	700401
Mains voltage - VAC	230
Weight - kg	0,100
IP rate	44



### Wall outlet - on-wall mounted double

Item No.	700403
Mains voltage - VAC	230
Weight - kg	0,200
IP rate	44



### Wall outlet - on-wall mounted double with PlugIn, in- and output

Item No.	702779
Mains voltage - VAC	230
Weight - kg	0,058
IP rate	44

# PlugIn wall outlets and fuse



## PlugIn wall outlet

Item No. Main outlet double 230VAC/10A, recessed with cover - white 700405



## Wall outlet - flush mounted single

Item No. Single main outlet, 230VAC/10A, recessed - white 701317

Item No. Single main outlet, 230VAC/10A, recessed - brown 701316

Item No. Single main outlet, 230VAC/10A, recessed - grey 701315



## PlugIn fuse

Item No. Automatic fuse 230V 16A PlugIn/Out 700429

# Wall outlets and frames



## Frames for wall outlets

Item No. single frame for wall outlet - white	701307
Item No. single frame for wall outlet - brown	701306
Item No. single frame for wall outlet - grey	701305
Item No. double frame for wall outlet - white	701310
Item No. double frame for wall outlet - brown	701309
Item No. double frame for wall outlet - grey	701308
Item No. triple frame for wall outlet - brown	701312
Item No. triple frame for wall outlet - grey	701311



## Wall outlets 12VDC/TV

Item No. wall outlet 12VDC/TV - white	701323
Item No. wall outlet 12VDC/TV - brown	701322
Item No. wall outlet 12VDC/TV - grey	701321



## Wall outlets 12VDC with cover

Item No. Wall outlet 12VDC with cover - white	701320
Item No. Wall outlet 12VDC with cover - brown	701319
Item No. Wall outlet 12VDC with cover - grey	701318



## Switch 12V single, large

Item No. Single switch - white	701342
Item No. Single switch - brown	701341
Item No. Single switch - grey	701340



## Switch 12V double

Item No. Double switch - white	701333
Item No. Double switch - brown	701332
Item No. Double switch - grey	701331

# Switches



## Switch 12V single, small

Item No. single switch - white	701339
Item No. single switch - brown	701338
Item No. single switch - grey	701337



## Switch 12V single, small with LED

Item No. single switch with light - white	701336
Item No. single switch with light - brown	701335
Item No. single switch with light - grey	701334



## Dimmer

Item No. dimmer 12V/22V 120W/240W - white	701330
Item No. dimmer 12V/22V 120W/240W - brown	701329
Item No. dimmer 12V/22V 120W/240W - grey	701328

# ISO Transformer

The isolation transformer (separation transformer) is the best solution for transferring 250VAC mains shore power to the boat. This ensures personal safety, meets required standards and directives, and removes corrosion problems. By preventing corrosion problems, an isolator can save you large amounts of money.



## ISO Transformator

Item No. with PlugIn	700473
Item No. with PG nipple	700471
Voltage - in/out - VAC	230
Power - W	3600
Charging current - A	16
Height/Width/Depth - mm	295/115/295
Weight - kg	17

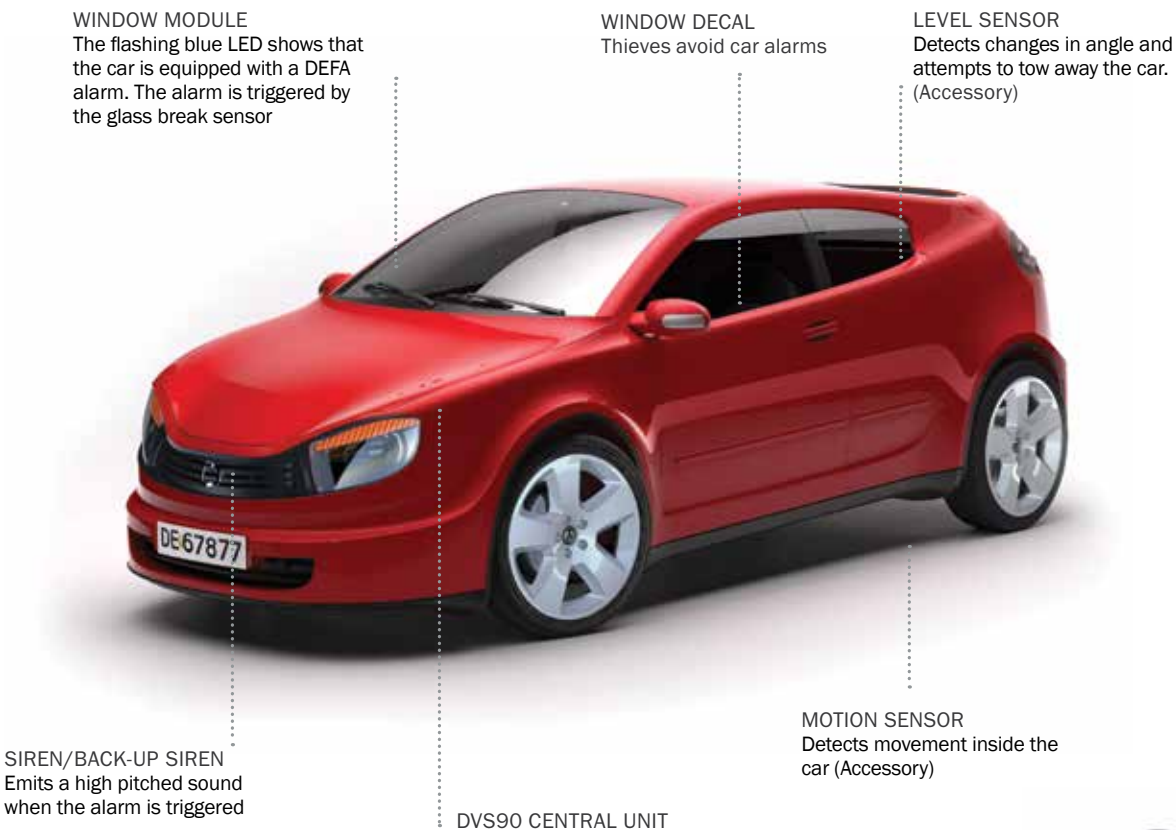
# Security products

Car alarm:	
Security	97
Accessories and tools	98
Security and tracking system	
Finder Link	99



# Security

DVS90 is a modern alarm system designed on a flexible electronic platform that ensures a very easy set up and installation. The alarm can be installed in all vehicles regardless of electrical supply and electronic systems. To raise the security level further, additional plug and play sensors and Second Authorization remote control are available.



## SECOND AUTHORIZATION

Protect your car against the most advanced methods of car theft: Original alarm and original start-up protection without any other authorization functionality can easily be turned off by stealing the signals from the car's keyless system. PC programs can activate and deactivate the keyless system and start the car. DEFA DVS90 and Second Authorization as an extra remote control makes it impossible to open the door and start the car, because of the rolling "anti-grabbing" code that protects the system.



Car specific installation drawings and dedicated support from DEFA makes DSV90 a number one in rapid installation and reliability. DVS90 has digital interfaces for all types of CAN buses found in modern cars. It also provides interfaces for analogue and semi-digital inputs with corresponding functionality, for support of older vehicles or boats. The alarm can be installed in all vehicles using 12V or 24V battery systems. [www.defa.com](http://www.defa.com)

<b>Security DVS90 - Car alarm kit</b>	
Item No.	600900

# Accessories and tools for Security



## Motion sensor

Item No. 2,5 m cable	600914
Item No. 5 m cable	600916



## Level sensor

Item No.	600915
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## Sirens

Standard Siren	Item No. 600911
Back-up Siren	Item No. 600912



## 2-circuit immobiliser

Item No.	600890
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## Remote control

Item No.	600625
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## Second Authorization

Second Authorization remote control	Item No. 600676
2 Second Authorization remote control and user manual	Item No. 600678



## Accessories and tools

1. Staking out tools for P2	Item No.	600525
2. Splitter kit	Item No.	600913
3. Hood switch	Item No.	600523
4. Central locking module	Item No.	600295
5. Staking out tools for P4,P5,P6 and P7	Item No.	600930

# Finder Link

Finder Link alerts you if your car is stolen, and helps you track its location on your mobile. You will receive an alert to your phone if the car is started - even with the original key - or if the car is moved in any way. Then you can easily track its location and share the coordinates. To get started, install Finder Link in your car, and sign up on defa.com. The App can be downloaded free of charge.

## FINDER AND SECURITY

Finder Link includes our Security and Finder solutions, and consists of a GPS/GSM unit that is installed in your car, and connected with the DEFA App.

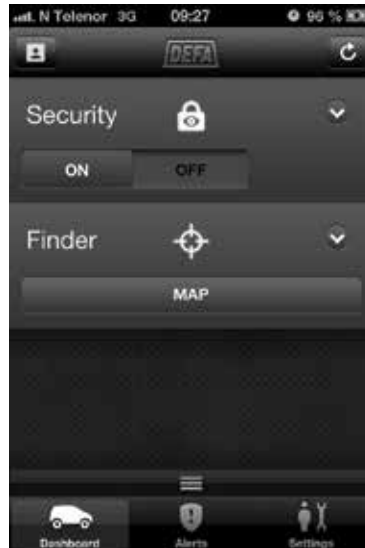
### Security

Security protects your car from theft, with a visible sticker in the window.

- Alerts you if the car is moved or started - even with original keys.
- Let you set a maximum speed, and alerts if this speed is exceeded.

### Finder

- Helps you track and locate your car in the app
- Lets you share the coordinates of your car's location with the police and insurance company.



Receive theft alert



Locate and follow your car's movements

*Tip: Don't forget to ask your insurance company for better terms after installing Finder Link!*



## Finder Link - 440034

Link Hub module	440030
GPS Link module	440037



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# About DEFA

DEFA is a Norwegian-owned company with a long history and proud traditions. Ever since DEFA was established in 1946, we have been focused on innovative solutions and quality products. Today our product development, production, marketing and sales departments are found in Norway, Sweden, Finland, Canada and China, and our products are distributed in more than 30 countries.

DEFA is the European market leader in electrical preheating for cars. We also offer a full range of fixed and portable chargers for all types of vehicles and boats, for both private and professional use. In addition, we offer security systems for cars and leisure homes, and innovative lighting solutions for offices, tunnels, industry and outdoor use. In order to give our customers the best in convenience and control, both our preheating and security systems can be controlled by our own DEFA app.

[www.defa.com](http://www.defa.com)



**WARMUP**



**CHARGERS**



**SECURITY**



**FINDER**

