

# trak<sup>®</sup> power premium charge

Innovative charging technology  
“Made in Germany”



## Motive Power Systems

Reserve Power Systems  
Special Power Systems  
Service

## Your benefits with HOPPECKE trak<sup>®</sup> power premium charge

- **High frequency charging technique**
- **Energy-saving up to 30%** as trak<sup>®</sup> air and trak<sup>®</sup> eco systems
- **Low investment costs raised** – Suitable for charging of all battery types and different battery sizes
- **Modular charger design** – performance-enhancing and retrofit of accessories possible at any time. Enhanced operating safety
- **Space saving models** – compact and lightweight design



## Typical applications of HOPPECKE trak<sup>®</sup> power premium charge

- Multi-shift operation 24/7
- Complete quick charge down to 5 hours
- Extreme applications (e.g. in areas close-up to cold stores)
- All Motive Power batteries technologies and automated guided vehicles (AGV) systems

## trak<sup>®</sup> power premium charge

### Power from innovation

For over 80 years now we have been developing, producing and marketing innovative system solutions for vehicle traction systems.

The trak<sup>®</sup> power premium charge range is the core of our trak<sup>®</sup> system strategy for all applications in the field of industrial trucks, logistical equipment, automated guided vehicle systems and electric vehicles.

These units are “Made in Germany” at HOPPECKE Technologies’ high-tech production facilities in Zwickau.

### Technology

Very high availability of the trak<sup>®</sup> air, trak<sup>®</sup> basic, trak<sup>®</sup> eco and trak<sup>®</sup> fnc battery systems is obtained through the matching of chargers to battery types and by individually integrated power end stages.

The use of high-frequency technology combined with maintenance-friendly modular construction permits compact designs with space-saving wall mounting or floor mounting as desired. In combination with the Battery Identification Module trak<sup>®</sup> com IP, multi-capacity and multi-voltage capability is obtained. This means that different batteries with varying voltage and capacity may be charged by a single charging unit.

HOPPECKE trak<sup>®</sup> power premium charge units offer maximum reliability combined with high performance for all applications and battery systems.

Through our modular structure for both capacity and accessories, our systems may be individually tailored to your investment budget.



### Lower operating costs

The battery chargers of the trak<sup>®</sup> power premium charge range achieve efficiency levels of over 92%. And moreover, the intelligent processor control of the power modules makes possible a power factor of  $\cos \varphi \approx 0,97$ .

These features lead to a reduction in operating (energy) costs of over 12% (up to 30% as HOPPECKE traction power systems), and best possible utilisation of mains power. The compact and space-saving design of the trak<sup>®</sup> power units makes for efficient use of the available space.



Space-saving installation

## Features and benefits

### trak<sup>®</sup> power premium charge

#### ■ Primary switch mode technology high-frequency (HF) battery chargers

- Regulated, gentle and optimal charging in the trak<sup>®</sup> air, trak<sup>®</sup> basic, trak<sup>®</sup> eco, trak<sup>®</sup> fnc system

#### ■ High efficiency lifted to over 92%

- Energy-saving of around 12% every time you charge, as compared with conventional chargers

#### ■ Modular charger design

- Great flexibility for enhancing performance and retrofitting of accessory components (e.g. Battery Identification Module trak<sup>®</sup> com IP for monitoring electrolyte level of the connected battery)
- Maximum operating reliability through parallel-connected power modules

#### ■ Battery Management

- Efficient system management
- Integral CAN-bus control
- USB interface as standard
- May be connected to trak<sup>®</sup> monitor Battery Management System

#### ■ LC-Display

- Easy to read
- Large display makes it easy to read battery state of charge even from a distance
- Easily discernible indication of state of charge
- Variable positioning of display and control elements
- Adjustable angle of view

#### ■ Battery availability

- Quick and reliable information on remaining charging time
- State of charge display counting down to zero

#### ■ Charge cycle memory

- For simple and paper-less documentation
- Stores data for the last 200 cycles
- Continuous memory of all cycles, ampere-hours, etc.

#### ■ Programmable start of charging

- More reliable operation and lower operating costs
- Delayed random start of charging reduces peaks in utilisation of mains power (e.g. after mains power failure)
- Possible to make use of cheaper off-peak current through programmable switch-on delay facility and weekly program

#### ■ Automatic electrolyte level and battery temperature control

- Quick and reliable warning to the operator
- Audible signal e.g. low electrolyte level in the battery

#### ■ Flexibility and compatibility

- Investment safeguarded for the future
- Can be set for all battery types and applications

#### ■ High-grade power factor correction (PFC with $\cos \varphi \approx 0,97$ )

- Provided as standard for all units
- No extra costs for power factor correction and lower electrical installation costs (about 60% less) vs. standard 50 Hz



## Accessories

### trak<sup>®</sup> power premium charge

#### 1. trak<sup>®</sup> air

##### ■ Charging optimised through electrolyte circulation

- Reduction of charging time by down to 2.5 hours (95% SOC)
- Up to 30% lower energy and maintenance costs in the trak<sup>®</sup> air system
- Longer anticipated battery life
- High battery availability through opportunity charging (shift-plus operation) up to 16 hours

#### 2. Battery Identification Module trak<sup>®</sup> com IP

##### ■ Interactive charging via battery identification

- Optimised and more reliable operation of the vehicle fleet
- Charging guided by battery temperature
- Battery electrolyte level monitoring and indication
- Rapid switching-off in the event of disconnection without STOP button (explosion protection with remote ON/OFF)

#### 3. LCD

##### ■ Detailed charge information using different colours of background lighting

- Display can also easily be read from a distance
- Optimal visual display
- Charging information: remaining charging time, current, voltage, software version, charging characteristic, actual values of the connected battery, temperature, fault indication

#### 4. Wall mounting system

##### ■ Easy handling

- Space-saving mounting of equipment
- Easily installed

#### 5. Dust filter

##### ■ With automatic temperature monitoring for extreme applications in dusty environments (e.g. timber processing plants, the paper industry, etc.)

- Enhanced reliability in operation and reduced maintenance costs

#### 6. Charger interconnection via trak<sup>®</sup> monitor

##### ■ Centralisation of all charging and battery data for a central PC

- Easy analysis and good transparency of output and consumption data

#### 7. External temperature sensor

##### ■ Interactive adjustment of the charging characteristic through continuous battery temperature measurement

- Extended battery life even at extreme temperatures (e.g. in cold stores, forklift used outside etc.)

#### 8. Steel underframe

##### ■ Steel underframe with the same type of coating and colour as the charger, and matched to the two sizes of the chargers

- Quick and easy installation
- Avoids the need for wall mounting
- Reduces contamination when the unit is permanently standing on the workfloor
- Secure installation, protected from damage

#### 9. External state of charge display

##### ■ Use of power LEDs to enhance visibility of charger status display

- Clear view from all angles

#### 10. Quick charge

##### ■ Charge of the battery to 95% of the primary state of charge within 2.5 hours

- Increased availability of the vehicles

#### 11. Multi charge system

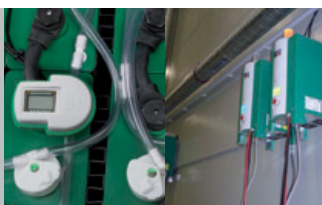
##### ■ Simultaneous charge of up to 8 connected batteries or vehicles with one charger

- High space saving in the charging area

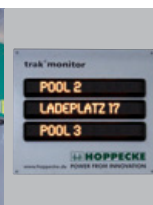
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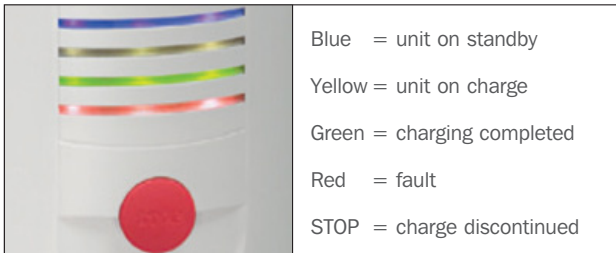
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## Description of state of charge display

trak<sup>®</sup> power premium charge

### LED version



### LCD version

= different background lighting colours depending on charging status

trak HF<sup>®</sup> 80V 120A Hopp 2  
 7h 45m  
 2.15 V/C 0 A 30 °C

The charger has charged the traction battery. The full battery indicates that the charging process has been completed. Charging time was 7 h 45 min. The end-of-charge values were 2.15 V/C and 20 A at 30 °C electrolyte temperature.

trak HF<sup>®</sup> 80V 120A Hopp 3  
 0h 0m  
 0.00 V/C 0 A

The charger is in standby mode and awaits a battery for charging. The programmed rated voltage and current may be read in the upper part of the display HOPP 3 describes the specified charging characteristic, in this case trak<sup>®</sup> eco.

trak HF<sup>®</sup> 48V 100A Hopp 1  
⚠  
 11h 24m  
 E01  
 1.97 V/C 100 A 30 °C

The charger has a fault, indicated by the fault code E01 and by the spanner symbol. Here the charger has identified a over-discharged battery.

trak HF<sup>®</sup> 48V 100A Hopp 2  
 11h 22m  
 2.21 V/C 100 A 30 °C

The charger is currently charging. The remaining charging time is 11 hours and 22 minutes.

## Type list

### trak<sup>®</sup> power premium charge

Type	Modules	max. mains current [A]	Nom. mains current [A]	max. mains power [kVA]	AC-fuse [A]	AC plug connector [V]	DC cable [mm <sup>2</sup> ]	Casing dimensions			Weight without packaging [kg]	Weight [kg]
								H [mm]	W [mm]	D [mm]		
E230 G 24 / 030 B-F14 HO-HF	1	5.0	5.0	1.0	16	Schuko 230V 1~	16	590	310	360	14	19
E230 G 24 / 060 B-F14 HO-HF	2	9.9	9.4	2.1	16	Schuko 230V 1~	16	590	310	360	18	23
E230 G 24 / 090 B-F14 HO-HF	3	14.9	13.9	3.1	16	Schuko 230V 1~	25	590	310	360	22	27
E230 G 24 / 120 B-F14 HO-HF	4	19.8	18.4	4.1	20	CEE 32A 230V 1~	25	590	310	360	26	31
D400 G 24 / 125 B-F14 HO-HF	1	5.7	5.1	3.5	16	CEE 16A 400V 3~	35	590	310	360	22	27
D400 G 24 / 250 B-F14 HO-HF	2	11.3	10.2	7.1	16	CEE 16A 400V 3~	70	590	310	360	31	36
E230 G 36 / 015 B-F14 HO-HF	1	3.4	3.0	0.7	16	Schuko 230V 1~	16	590	310	360	14	19
E230 G 36 / 030 B-F14 HO-HF	2	6.8	6.1	1.4	16	Schuko 230V 1~	16	590	310	360	18	23
E230 G 36 / 045 B-F14 HO-HF	3	10.3	9.1	2.1	16	Schuko 230V 1~	16	590	310	360	22	27
E230 G 36 / 060 B-F14 HO-HF	4	13.7	12.2	2.8	16	Schuko 230V 1~	16	590	310	360	26	31
D400 G 36 / 065 B-F14 HO-HF	1	4.3	3.9	2.7	16	CEE 16A 400V 3~	25	590	310	360	22	27
D400 G 36 / 130 B-F14 HO-HF	2	8.7	7.8	5.4	16	CEE 16A 400V 3~	35	590	310	360	31	36
D400 G 36 / 195 B-F14 HO-HF	3	13.0	11.7	8.1	16	CEE 16A 400V 3~	70	590	470	360	39	44
D400 G 36 / 260 B-F14 HO-HF	4	17.3	15.5	10.8	20	CEE 32A 400V 3~	95	590	470	360	47	52
E230 G 48 / 015 B-F14 HO-HF	1	4.3	3.9	0.9	16	Schuko 230V 1~	16	590	310	360	14	19
E230 G 48 / 030 B-F14 HO-HF	2	8.7	7.8	1.8	16	Schuko 230V 1~	16	590	310	360	18	23
E230 G 48 / 045 B-F14 HO-HF	3	12.6	11.2	2.6	16	Schuko 230V 1~	16	590	310	360	22	27
E230 G 48 / 060 B-F14 HO-HF	4	16.9	15.1	3.5	20	CEE 32A 230V 1~	16	590	310	360	26	31
D400 G 48 / 065 B-F14 HO-HF	1	5.8	5.2	3.6	16	CEE 16A 400V 3~	16	590	310	360	22	27
E230 G 48 / 090 B-F14 HO-HF	6	24.9	23.4	24.9	25	CEE 32A 230V 1~	35	590	470	360	30	35
D400 G 48 / 100 B-F14 HO-HF	2	8.9	8.0	5.5	16	CEE 16A 400V 3~	35	590	310	360	31	36
D400 G 48 / 130 B-F14 HO-HF	2	11.5	10.4	7.2	16	CEE 16A 400V 3~	35	590	310	360	31	36
D400 G 48 / 195 B-F14 HO-HF	3	17.3	15.5	10.8	20	CEE 32A 400V 3~	70	590	470	360	39	44
D400 G 48 / 260 B-F14 HO-HF	4	23.1	20.7	14.4	25	CEE 32A 400V 3~	70	590	470	360	47	52
D400 G 48 / 325 B-F14 HO-HF	5	28.8	26.0	18.0	50	CEE 63A 400V 3~	95	1300	600	430	103	108
D400 G 48 / 390 B-F14 HO-HF	6	34.6	31.2	21.6	50	CEE 63A 400V 3~	95	1300	600	430	110	115
D400 G 72 / 040 B-F14 HO-HF	1	5.3	4.8	3.3	16	CEE 16A 400V 3~	16	590	310	360	22	27
D400 G 72 / 080 B-F14 HO-HF	2	10.6	9.6	6.6	16	CEE 16A 400V 3~	25	590	310	360	31	36
D400 G 72 / 120 B-F14 HO-HF	3	16.0	14.3	9.9	20	CEE 32A 400V 3~	35	590	470	360	39	44
D400 G 72 / 160 B-F14 HO-HF	4	21.3	19.1	13.3	25	CEE 32A 400V 3~	50	590	470	360	47	52
D400 G 72 / 200 B-F14 HO-HF	5	26.6	24.0	16.6	50	CEE 63A 400V 3~	70	1300	600	430	103	108
D400 G 72 / 240 B-F14 HO-HF	6	31.9	28.7	19.9	50	CEE 63A 400V 3~	70	1300	600	430	109	114
D400 G 72 / 280 B-F14 HO-HF	7	37.3	33.5	23.2	50	CEE 63A 400V 3~	95	1300	600	430	116	121
D400 G 72 / 320 B-F14 HO-HF	8	42.6	38.2	26.5	50	CEE 63A 400V 3~	95	1300	600	430	124	129
D400 G 80 / 040 B-F14 HO-HF	1	6.0	5.4	3.7	16	CEE 16A 400V 3~	16	590	310	360	22	27
D400 G 80 / 080 B-F14 HO-HF	2	12.0	10.7	7.4	16	CEE 16A 400V 3~	25	590	310	360	31	36
D400 G 80 / 120 B-F14 HO-HF	3	17.9	16.1	11.2	25	CEE 32A 400V 3~	35	590	470	360	39	44
D400 G 80 / 160 B-F14 HO-HF	4	23.9	21.5	14.9	25	CEE 32A 400V 3~	50	590	470	360	47	52
D400 G 80 / 200 B-F14 HO-HF	5	29.9	26.8	18.6	50	CEE 63A 400V 3~	70	1300	600	430	103	108
D400 G 80 / 240 B-F14 HO-HF	6	35.9	32.2	22.3	50	CEE 63A 400V 3~	70	1300	600	430	109	114
D400 G 80 / 280 B-F14 HO-HF	7	41.9	37.7	26.1	50	CEE 63A 400V 3~	95	1300	600	430	116	121
D400 G 80 / 320 B-F14 HO-HF	8	47.8	43.0	29.8	50	CEE 63A 400V 3~	95	1300	600	430	124	129
D400 G 96 / 25 B-F14 HO-HF	1	4.2	4.2	2.6	16	CEE 16A 400V 3~	16	590	310	360	22	27
D400 G 96 / 50 B-F14 HO-HF	2	8.3	8.0	5.2	16	CEE 16A 400V 3~	16	590	310	360	31	36
D400 G 96 / 75 B-F14 HO-HF	3	12.5	11.7	7.8	16	CEE 16A 400V 3~	16	590	470	360	39	44
D400 G 96 / 100 B-F14 HO-HF	4	16.6	15.5	10.4	25	CEE 32A 400V 3~	25	590	470	360	47	52
D400 G 96 / 125 B-F14 HO-HF	5	20.8	19.2	12.95	25	CEE 63A 400V 3~	35	1300	600	430	103	108
D400 G 96 / 150 B-F14 HO-HF	6	24.9	23.0	15.54	50	CEE 63A 400V 3~	35	1300	600	430	109	114
D400 G 96 / 175 B-F14 HO-HF	7	29.1	26.7	18.13	50	CEE 63A 400V 3~	50	1300	600	430	116	121
D400 G 96 / 200 B-F14 HO-HF	8	33.3	30.4	20.72	50	CEE 63A 400V 3~	95	1300	600	430	124	129
D400 G 120 / 25 B-F14 HO-HF	1	5.4	5.2	3.2	16	CEE 16A 400V 3~	16	590	310	360	22	27
D400 G 120 / 50 B-F14 HO-HF	2	10.4	9.9	6.5	16	CEE 16A 400V 3~	16	590	310	360	31	36
D400 G 120 / 75 B-F14 HO-HF	3	15.6	14.5	9.7	16	CEE 16A 400V 3~	16	590	470	360	39	44
D400 G 120 / 100 B-F14 HO-HF	4	20.8	19.2	13.0	25	CEE 32A 400V 3~	25	590	470	360	47	52
D400 G 120 / 125 B-F14 HO-HF	5	26.0	23.9	16.18	50	CEE 63A 400V 3~	35	1300	600	430	103	108
D400 G 120 / 150 B-F14 HO-HF	6	31.2	28.6	19.42	50	CEE 63A 400V 3~	35	1300	600	430	109	114
D400 G 120 / 175 B-F14 HO-HF	7	36.4	33.2	22.66	50	CEE 63A 400V 3~	50	1300	600	430	116	121
D400 G 120 / 200 B-F14 HO-HF	8	41.6	37.9	25.89	50	CEE 63A 400V 3~	95	1300	600	430	124	129

Every charger is available in 5 A steps within its product spectrum!

## Battery Identification Module trak<sup>®</sup> com IP

### ■ Data exchange via PC

trak<sup>®</sup> power premium chargers automatically store the following charging data for the last 200 charging cycles:

- Charge in Ah
- Date and time of switch-on
- Fault reports
- Deep discharge
- Open circuit voltage
- Battery number
- Battery temperature
- Charging time
- End of charge voltage/current

The following data is also collected on a cumulative basis:

- Number of complete charges
- Number of all over discharges
- Number of incomplete charges (interruption)
- Operating hours of the charger

The setting of charging parameters and all interchange of data are effected via a standard USB interface.

### ■ HOPPECKE Battery Identification Module (BIM)

The Battery Identification Module trak<sup>®</sup> com IP is used to identify a battery. A single programming of a battery type is sufficient for the charger to implement the correct charging procedure for the battery concerned. The Battery Identification Module trak<sup>®</sup> com IP allows different battery types and systems to be charged by a single charger.



PC-controlled data exchange in a charging station

trak<sup>®</sup> power premium chargers may be combined with the Battery Identification Module trak<sup>®</sup> com IP to give the following benefits to the customer:

### ■ Battery Identification Module trak<sup>®</sup> com IP permits “chaos charging” with a single type of charger

- Different voltages, capacities and battery systems (gel, AGM or wet) may be charged using only one type of charger

### ■ Leasing of power

- Leasing of power is part of the HOPPECKE full battery service. With the Battery Identification Module trak<sup>®</sup> com IP, as for your electricity and gas bills, you pay for just the power you have actually used

### ■ Battery Identification Module trak<sup>®</sup> com IP is acid-resistant and shockproof

### ■ Interactive charge

- An integral temperature sensor controls the charger interactively to give optimal charging under all temperature conditions and applications (e.g. heavily fluctuating ambient temperatures as in cold stores and foundries)

The battery electrolyte level is monitored and a signal is given to the operator if water is needed. Battery Identification Module trak<sup>®</sup> com IP may always be retrofitted.



Battery Identification Module trak<sup>®</sup> com IP



Motive Power Systems



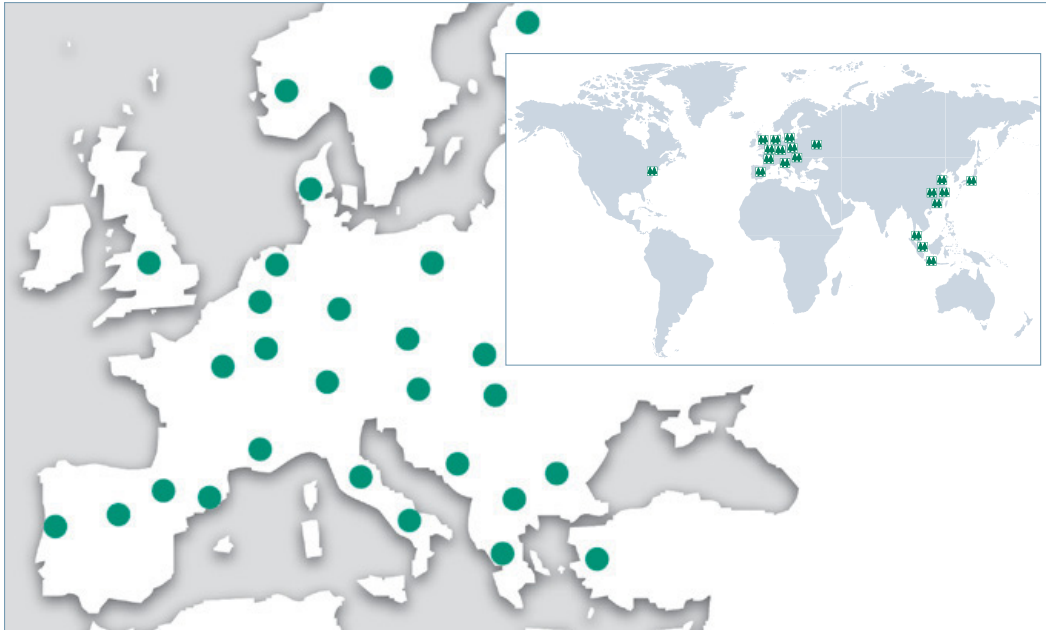
Reserve Power Systems



Special Power Systems



Service



HOPPECKE subsidiaries and factories - European sales and service network

## Industrial batteries - Complete energy systems - Full Service

- Low-maintenance and no-maintenance batteries
- Innovative battery chargers based on the latest technology
- Battery accessories
- Battery management systems and software
- Battery changeover systems
- Battery/charger servicing
- Battery recycling
- Applications engineering and technology
- Battery room design
- Technical training and seminars
- Leasing
- Power by the hour

Your partner for sustainable energy solutions!

Further information on [www.hoppecke.com](http://www.hoppecke.com)

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