Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Киргизия (ак)312-96-26-47
Россия (495)268-04-70
Казахстан (772)734-952-31

www.aeg.nt-rt.ru || age@nt-rt.ru

Технические характеристики на инверторные системы TRANSOKRAFT N1 бренда AEG Power Solutions

AEG

POWER
SOLUTIONS

TRANSOKRAFT N1

Analog Inverter

Transokraft 3 N1
220 VDC 30, 50, 80 120, 170, 200 kVA
110 VDC 20, 40, 60, 80 kVA

Transokraft 1 N1
220 VDC 10, 20, 40 60, 80 kVA
110 VDC 10, 20, 40, 60 kVA

Secure independent AC supply
The analog Transokraft inverters are suitable to secure uninterrupted supply to critical loads which require an AC voltage supply independent of the mains power system and the faults which may occur.

This independent supply avoids interruptions to the connected loads caused by mains power failures, mains voltage deviations or mains frequency deviations, any of which may result in considerable financial costs and physical danger.

Typical applications
- Nuclear power plants
- Hydropower plants
- Fossil energy plants
- Chemical industry

CERTIFICATIONS

Our quality program is structured to meet the requirements of:
- CE Mark
- EMC directive
- Safety directive
- KTA 1401
- RCC-E (details on request)
- ISO 9001 & ISO 140001
- IAEA 50-C-Q

BENEFITS

- 100 % analogue regulation and monitoring technology
- No software or programmable devices
- Seismic-proof technology
- Fans in redundant configuration via additional vacuum chamber at top of unit, replacement from the front
- Short circuit proof constant current source
- High output short circuit capability (up to 600 % of nominal current is possible)
- Start of Motors (6*In) / offers high startup current
- Constant current source independent of the output voltage level variations
- Designed for 100 % asymmetric load and fast dynamic response
- Maximum reliability
- Design lifetime >30 years
- Designed for use in harsh environments
- Easy maintenance via diagnostic device

POWER COMPETENCES

FOR NUCLEAR AND HEAVY-DUTY CRITICAL APPLICATIONS

AEG Power Solutions has a long and reliable history in nuclear applications; our NPP specialists have been assisting nuclear power plants around the world since 1970.

For the nuclear industry, AEG PS provides reliable standard and customized power system solutions, particularly UPS, chargers and converters, ensuring continuous power for 1E equipment. In addition to our NPP equipment production site located in Germany, we support projects and provide service related to the entire design process, including theoretical and/or experimental verification of EMC, environmental and seismic requirements.

Why is AEG Power Solutions your ideal partner?

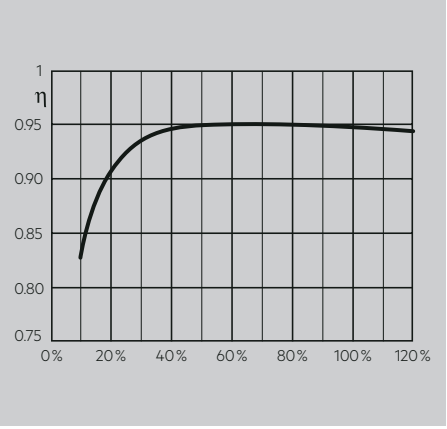
- Over 50 years of experience in power plant technology
- Product life time >30 years
- 100 % development and production “Made in Germany”
- Analog design, no need for software qualification
- Lifelong spare parts delivery for the entire power plant product range
- Products engineered according to international standards such as KTA, RCC-E, CSA, IEEE ...
- Products designed for 100 % power at 40 °C ambient temperature
- Products operate at 55 C° ambient temperature by load reduction
- Products designed for all seismic standards
- Worldwide references
- Easy-to-maintain by AEG PS diagnostic devices
- Worldwide service

Design

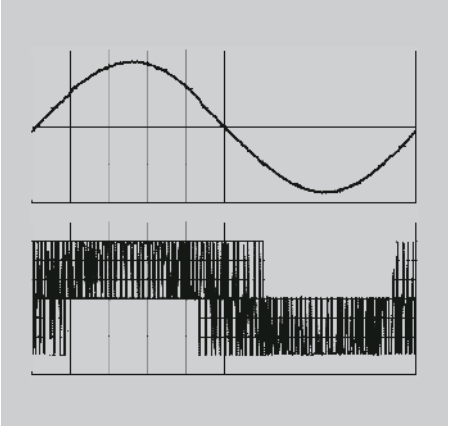
- Transokraft N1 as single system
- Transokraft N1 as parallel system
- Thyrostat N1 as central SBS
- Transokraft N1 and Profitec S N1 as UPS system
- Special configurations on request

Decades of experience
Since 1947, AEG has been a well-respected and recognized manufacturer of equipment for all types of power generation plants including conventional, nuclear, wind and solar as well as for power transmission and distribution.

This led us to adapt our solutions and to leverage our strong expertise to the growing CSP applications market and to other renewable energy solutions.



Inverter efficiency of the
170 kVA Transokraft 3 N1



One phase of the load voltage (top)
and the inverter set voltage (bottom)

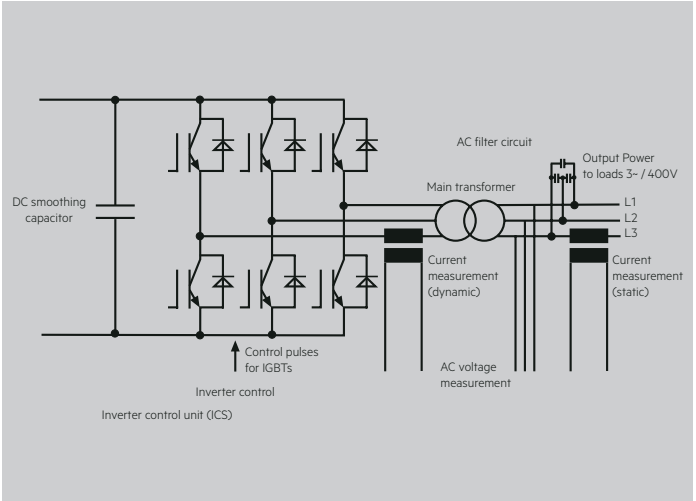
Transokraft inverters are pre-wired units that form part of an uninterruptible power supply system (UPS). They are used where there is already a secure DC supply or as a system with a Profitec S rectifier. The following components and equipment are grouped together in a cabinet:

- Inverter
- Static Bypass Switch SBS (Thyrostat N1)
- Manual bypass
- Control equipment
- Protection and monitoring equipment
- Controls and indicators
- Interface for diagnostic device

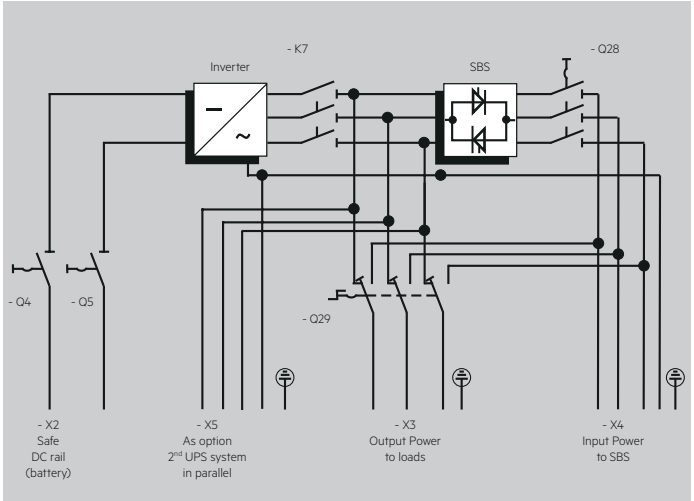
Functional description of the components

Inverter
The inverter converts the incoming DC voltage into an AC voltage which supplies the connected loads with a regulated, sinusoidal AC voltage. The principal components of the inverter are the direct current filter capacitor, the inverter module (which is set up as a three-phase current bridge circuit with transistor switches – IGBTs –), the transformer and the alternating current filters. Appropriate activation of the IGBTs produces square-wave pulses at the module's output. These are converted into a sinusoidal voltage by means of filtering. The filter capacitor ensures that the voltage ripple and the superimposed alternating current portion remain within the permitted limits.

Controlling the output voltage
The value of the output voltage at any given time is continuously compared with the specified sinusoidal set value. Any deviations trigger an immediate response from the inverter because of the high-frequency pulses within a half-wave as well as a static voltage tolerance of ±1%, resulting in excellent dynamic properties. The frequency of the phase conductor voltage at the inverter output is kept stable by means of a quartz oscillator so that no deviation can occur even when the load suddenly changes.



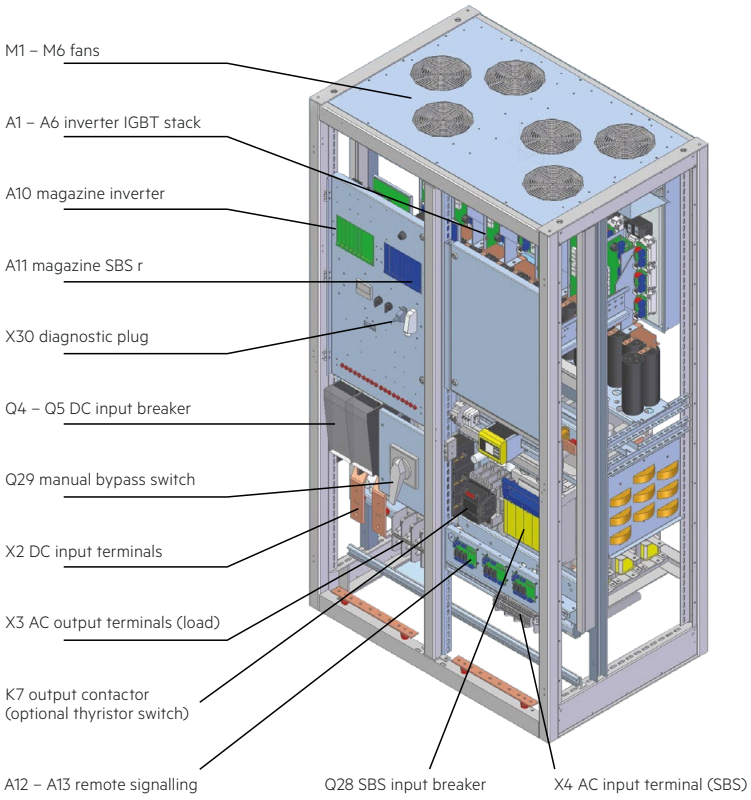
Circuit layout of inverter control within the Transokraft 3 N1



Circuit layout of the main components Transokraft 3 N1

TOPOLOGY & OPERATION

Mechanical structure of the Transokraft 3 N1 units
The cable cross sectional areas should be selected in accordance with the connection diagram. The cooling air openings on both the front and the rear of the unit must always be kept clear for the purposes of optimum ventilation and optimum operational readiness.



Static Bypass Switch SBS (Thyrostat N1)
The SBS is used for changing the source of the protected alternating current for the load from the inverter supply to the mains supply without any interruption whatsoever.

Triggering occurs in the event of
- Inverter overload
- Load short circuit
- Inverter malfunction
- Load transfer from mains to inverter when the unit is switched on
- Load transfer from inverter to mains when the unit is switched off

The core components that make up the SBS are a thyristor contactor and a synchronization unit which ensures that the inverter voltage remains in frequency and phase synchronicity (synchronization range fnom ±1% of normal value) with the power system.

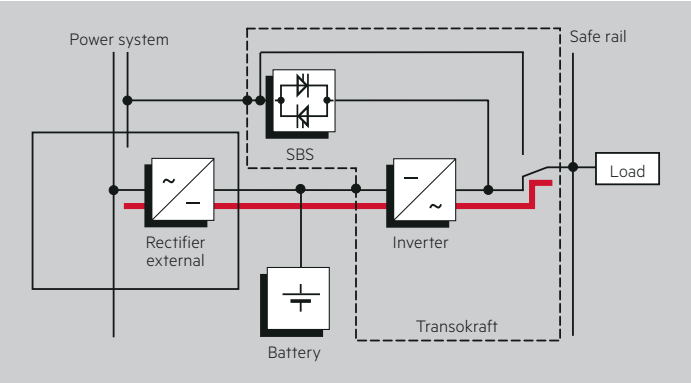
The thyristors, in an inverse-parallel connection (thyristor contactor in W3C / W1C circuit) in the mains line, switch the loads over to the mains without any interruption within only a few microseconds whenever there is a malfunction in the inverter or as a result of an overload or load short circuit.

The changeover command is issued by the inverter monitoring system or the load voltage monitoring system.

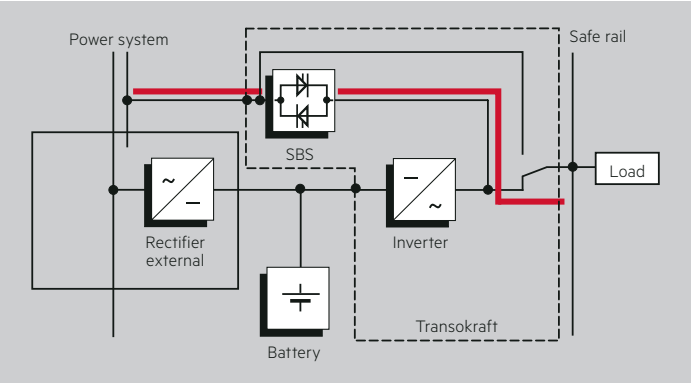
The SBS has an automatic retransfer facility. This carries out a transfer without interruption a few seconds after the change over to the mains, provided the inverter is operational and its output voltage is within the required tolerances.

SBS monitoring facilities
- Mains voltage watchdog (undervoltage or overvoltage) inhibits the SBS
- Load voltage monitor (undervoltage or overvoltage) causes the loads to switch over to the mains

Manual bypass
The manual bypass makes it possible to check the interactions between the inverter, thyrostat and power system without influencing the connected alternating current loads. A suitable means of doing this involves using the optional diagnostic unit. The unit must be de-energized whenever it is necessary to perform work on the Transokraft. The loads can be powered via the mains during this period by means of the manual bypass switch (Q29). The changeover occurs without interruption.



Power flow from the mains supply to the rectifier



Power flow if the inverter is malfunctioning

Operating & Monitoring the system

Monitoring and Interface
The inverter incorporates the necessary control, instruments and indicators to allow the operator to monitor the system status and performance and take any appropriate action. Furthermore, additional interfaces are available upon request to allow extended monitoring and control, as well as service functions.

Light emitting diodes (LEDs)
The inverter includes 12 external Light Emitting Diodes (LED's) to indicate the overall system operation status. LEDs colors are flexible.

Selector switch S1
The Inverter can be independently and manually started and stopped via front panel switches S1 (ON/OFF switch).

Measurements reading
6 analogue 96 x 96 measuring units (P2, P2, P21, P24, P27) are available as standard on the front panel of the equipment. These allow the user to visualize the charger output DC values of voltage & current as well the inverter output AC values. The Status Message P6 indicates the inverter status via the LEDs' Inverter or SBS Operation, fault message, signalling of the inverter or SBS message.

Remote monitoring solutions
- Modbus, Profibus, TCP/IP, IEC61850
- HMI Display
- Datalogger
- Voltage/Current transmitter
- IT network monitoring DC or AC
- Potential free contact

Signaling on printed circuit boards

Error codes are stored and displayed numerically. A table for these numbers is shown inside the unit. Detailed signal by LEDs for rapid fault registration on the individual cards, for example:

Inverter mode
- DC and AC voltage monitoring systems
- Detailed fault messages
- Detailed operating messages

SBS (Thyrostat N1)
- Load voltage monitoring
- Mains voltage monitoring
- Detailed fault messages
- Detailed operating messages

The relays satisfy the requirements of protection class II for safe electrical isolation (as per VDE 0631/0700). The contacts are rated for 5 V DC / 1 mA and 24 V AC / 100 mA.

Inverter mode

The inverter mode provides for a sustained load via the inverter, irrespective of whether there is mains power or not. The following functional sequences may occur depending on the specific operating circumstances:

With existing mains power supply to the rectifier (rectifier not included in the unit)
The rectifier takes over the inverter input current and charges the battery at the same time, so the battery is always fully charged. The inverter supplies the connected loads. If the rectifier supplying the inverter fails, the battery takes over the power supply to the inverter without any interruption. The bridging time is dependent on the size of the specific battery used and the degree of utilization of the inverter.

The rectifier resumes supplying power to the inverter and charging the battery when the mains power returns.

In the event of system malfunction
In the event of an internal system malfunction, the loads are switched from the inverter supply to mains supply without any interruption by means of the SBS. Once the malfunction has been rectified, the loads are once more switched from the mains to the inverter power supply by the SBS. This occurs automatically and without any interruption whatsoever.

MONITORING, TESTING AND REMOTE MANAGEMENT

Mains mode / test mode
In this operating mode, the loads are switched over to mains supply by means of the SBS. At the same time, the loads are electrically isolated from the inverter by means of the inverter output contactor. This mode is also suitable for testing and performing measurements on the inverter without affecting the loads. This mode should be selected for an attempted restart if the inverter has switched off due to a malfunction, in order to avoid changing back to inverter mode inadvertently. There is no supply to the loads if there is a mains power failure during this mode.

Remote signals and remote control
Each of the following remote signals is a volt free changeover contact on the terminals:

- Inverter mode
- Mains mode
- Battery (DC-voltage – undervoltage premonition at 2.1 V / per cell)
- Inverter malfunction
- SBS blocked
- Connection options for remote operation of the inverter:
  - Remote switch-on of the inverter
  - Blocking of frequency control by the power system (standby generating set)

Diagnostic device
The Transokraft N1 diagnostic device provides important data for annual checks as required by NPP's. It is designed to carry out the diagnosis for the Transokraft N1 inverter. It supports at commissioning and at failure indication.

Shows values for
- SBS voltage and voltage of auxiliary Inverter
- Inverter input voltage and monitoring values
- Inverter output voltage and monitoring values
- Inverter load output voltage and monitoring values
- Inverter output frequence

The Transokraft N1 diagnostic device supports voltage monitoring in the event of overvoltage or undervoltage.

Certifications

DIN EN ISO 9001:2000 certificated since 1994 TÜV München

UL 1778 UL 508 UPS Products Power Controller

Certified Europe CE certificated since 1995

KTA 1401 German Nuclear Power Plants certificated since 1992

Transokraft 1 N1

TRANSOKRAFT 1 N1, 220 V					
POWER AT COS φ = 0.8 lag (kVA)	**10 kVA**	**20 kVA**	**40 kVA**	**60 kVA**	**80 kVA**
Rated DC voltage	220 V +20 %, -20 %				
Current consumption at Ug_{nom}	41 A	80 A	158 A	235 A	316 A
Permissible voltage ripple (U_{rms})	<5 % of Ug_{nom}				
Voltage ripple produced by inverter I_{rms} at P_{nom}	<10 % of Ug_{nom}				
Rated AC voltage	230 V (220 V – 240 V adjustable) other voltages on request				
Deviation stat.	±1 %				
Deviation dyn. (at load surge 0 – 100 % – 0 without mains support)	Voltage dip <3 %				
Settling time	2 ms				
Setting range of the output voltage	±5 %				
Frequency without mains synchronization	50 Hz ±0.1 %; (60 Hz on request)				
Synchronization range	49.5 ... 50.5 Hz, ±1 % (other upon request)				
Power factor range	0 ind. – 1 – 0 cap.				
Nominal current output per phase/cos φ = 0.8 lag	43 A	87 A	174 A	261 A	348 A
Voltage curve	Sinusoidal				
Permissible non-linear load	100 %				
Voltage THD factor	<3 % in the entire load and DC voltage range also with non-linear load				
Interference suppression	EN62040 part 2 class C2				
Crest factor	2.5 at full load, higher with part load				
Overload behaviour/performance	150 % for 1 min; 125 % for 10 min				
Short circuit performance without mains support. Short circuit current/nominal current (I_{SC}/I_{NOM})	approx. 4.3 dyn.	approx. 3.1 dyn.	approx. 2.7 dyn.	approx. 3.1 dyn.	approx. 3.1 dyn.
	Higher inverter short circuit current upon request				
SBS overload behavior/performance	150 % for 10 min.				
SBS short circuit performance	1000 % for 100 ms				
Efficiency at 100 % nominal load	90 %	91 %	91.5 %	92 %	92 %
Efficiency at 50 % nominal load	90.5 %	91.5 %	92 %	93.5 %	93.5 %
Noise level at a distance of 1 m	<70 dB(A)				
Type of cooling	Forced natural air cooling with integrated underpressure chamber with redundant fans on top				
Coating	Powder-coated RAL 7035 (different color on request)				
Protection class	IP20 (DIN 40 050) bottom open (different IP on request)				
Dimensions, width	900 mm	900 mm	900 mm	1200 mm	1200 mm
Dimensions, depth	800 mm				
Dimensions, height	1800 or 2200 mm				
Weight	550 kg	650 kg	750 kg	900 kg	1000 kg
Diagnosis plug for annual check for connection of diagnostic device installed					
Operating temperature range	0 °C to +40 °C rel. humidity 20 – 80 % according IEC/EN 62040-3				
Storage temperature range	-30 °C to +75 °C rel. humidity 20 – 95 %, non-condensing according IEC/EN 62040-3				
Installation height	Up to 1000 m above sea level, without de-rating				
Cable entry	Bottom, top-entry on request				
ENVIRONMENTAL					
Norm	Environmental IEC 60721-3-1, class 1K3/1Z1/1B2/3C2/3S2/3M2 (storage) Environmental IEC 60721-3-2, class 2K3/2Z1/2B2/3C2/3S2/3M2 (transport) Environmental IEC 60721-3-3, class 3K3/3Z1/3B2/3C2/3S2/3M2 (operation)				
STANDARDS					
Safety	IEC 62040-1				
EMC	EN 61000-6-2; EN 61000-6-4; EN 62040-3				
Performance	EN 62040-3; EN 60146-1-1				
Protection	IEC 60529; IEC 60364-4-41				
Environmental	IEC 60721-3-3				
Qualification	via IEC, KTA 3704 via RCC-E 2012 & 2016				

TRANSOKRAFT 1 N1, 110 V

POWER AT COS φ = 0.8 lag (kVA)	10 kVA	20 kVA	40 kVA	60 kVA
Rated DC voltage	110 V +20 % -20 %, 125 V +15 % -20 %, other voltages on request			
Current consumption at Ug_{nom}	84 A	167 A	328 A	409 A
Permissible voltage ripple (U_{rms})	<5 % of Ug_{nom}			
Voltage ripple produced by inverter I_{rms} at P_{nom}	<10 % of Ug_{nom}			
Rated AC voltage	230 V (220 V – 240 V adjustable) other voltages on request			
Deviation stat.	±1 %			
Deviation dyn. (at load surge 0 – 100 % – 0 without mains support)	Voltage dip ±3 %			
Settling time	2 ms			
Setting range of the output voltage	±5 %			
Frequency without mains synchronization	50 Hz ± 0.1 %; (60 Hz on request)			
Synchronization range	49.5 ... 50.5 Hz, ±1 % (other upon request)			
Power factor range	0 ind. – 1 – 0 cap.			
Nominal current output per phase/cos φ =0.8 lag	43 A	87 A	174 A	261 A
Voltage curve	Sinusoidal			
Permissible non-linear load	100 %			
Voltage THD factor	<3 % in the entire load and DC voltage range also with non-linear load			
Interference suppression	EN62040 part 2 class C2			
Crest factor	2,5 at full load, higher with part load			
Overload behavior/performance	150 % for 1 min; 125 % for 10 min			
Short circuit performance without mains support. Short circuit current/nominal current (I_{SC}/ I_{NOM})	approx. 4.3 dyn.	approx. 3.0 dyn.	approx. 2.7 dyn.	approx. 3.2 dyn.
	Higher inverter short circuit current upon request			
Efficiency at 100 % nominal load	87 %	88 %	88.5 %	89 %
Efficiency at 50 % nominal loa	88 %	89 %	90 %	90 %
Noise level at a distance of 1 m	<70 dB(A)			
Type of cooling	Forced natural air cooling with integrated underpressure chamber with redundant fans on top			
Coating	Powder-coated RAL 7035 (different color on request)			
Protection class	IP20 (DIN 40 050) bottom open (different IP on request)			
Dimensions, width	900 mm	900 mm	900 mm	1200 mm
Dimensions, depth	800 mm			
Dimensions, height	1800 or 2200 mm			
Weight	550 kg	650 kg	700 kg	900 kg
Diagnosis plug for annual check for connection of diagnostic device installed				
Operating temperature range	0 °C to +40 °C rel. humidity 20 – 80 % according IEC / EN 62040-3			
Storage temperature range	-30 °C to +75 °C rel. humidity 20 – 95 %, non-condensing according IEC / EN 62040-3			
Installation height	Up to 1000 m above sea level, without de-rating			
Cable entry	Bottom, top-entry on request			
ENVIRONMENTAL				
Norm	Environmental IEC 60721-3-1, class 1K3/1Z1/1B2/3C2/3S2/3M2 (storage) Environmental IEC 60721-3-2, class 2K3/2Z1/2B2/3C2/3S2/3M2 (transport) Environmental IEC 60721-3-3, class 3K3/3Z1/3B2/3C2/3S2/3M2 (operation)			
STANDARDS				
Safety	IEC 62040-1			
EMC	EN 61000-6-2; EN 61000-6-4; EN 62040-3			
Performance	EN 62040-3; EN 60146-1-1			
Protection	IEC 60529; IEC 60364-4-41			
Environmental	IEC 60721-3-3			
Qualification	via IEC, KTA 3704 via RCC-E 2012 & 2016			

Transokraft 3 N1

TRANSOKRAFT 3 N1, 220 V

POWER AT COS φ = 0.8 lag (kVA)	30 kVA	50 kVA	80 kVA	120 kVA	170 kVA	200 kVA
Rated DC voltage	220 V +20 %, -20 %					
Current consumption at Ug_{nom}	118 A	199 A	313 A	471 A	671 A	774 A
Permissible voltage ripple (U_{rms})	<5 % of Ug_{nom}					
Voltage ripple produced by inverter I_{rms} at P_{nom}	<10 % of Ug_{nom}					
Rated AC voltage	400 V (380 V– 420 V adjustable) other voltages on request					
Deviation stat.	±1 %					
Deviation dyn. (at load surge 0 – 100 % – 0 without mains support)	Voltage dip <3 %					
Settling time	2 ms					
Setting range of the output voltage	±5 %					
Frequency without mains synchronization	50 Hz ±0.1 %; (60 Hz on request)					
Synchronization range	49.5 ... 50.5 Hz, ±1 % (other upon request)					
Power factor range	0 ind. – 1 – 0 cap.					
Nominal current output per phase/cos φ = 0.8 lag	43 A	72 A	116 A	173 A	245 A	289 A
Voltage curve	Sinusoidal					
Permissible non-linear load	100 %					
Voltage THD factor	<3 % in the entire load and DC voltage range also with non-linear load					
Interference suppression	EN62040 part 2 class C2					
Crest factor	2.5 at full load, higher with part load					
Overload behavior/performance	200 % for 5 sec., 150 % for 1 min; 125 % for 10 min					
Short circuit performance without mains support. Short circuit current/nominal current (I_{SC}/I_{NOM})	500 % for 2 sec.	600 % for 2 sec.	500 % for 2 sec.	600 % for 2 sec.	600 % for 2 sec.	500 % for 2 sec.
	Higher inverter short circuit current upon request					
SBS overload behaviour/performance	150 % for 10 min.					
SBS short circuit performance	1000 % for 100 ms					
Efficiency at 100 % nominal load	90.5 %	90.5 %	93.2 %	93.3 %	93.6 %	94 %
Efficiency at 50 % nominal load	92 %	92 %	94 %	94.4 %	94.4 %	94.6 %
Noise level at a distance of 1 m	<73 dB(A)					
Type of cooling	Forced natural air cooling with integrated underpressure chamber with redundant fans on top					
Coating	Powder-coated RAL 7035 (different color on request)					
Protection class	IP 20 (DIN 40 050) bottom open (different IP on request)					
Dimensions, width	900 mm	900 mm	900 mm	1200 mm	1200 mm	1200 mm
Dimensions, depth	800 mm					1000 mm
Dimensions, height	2200 mm					
Weight (depending on configuration)	600 kg	800 kg	850 kg	1100 kg	1150 kg	1300 kg
Diagnosis plug for annual check for connection of diagnostic device installed						
Operating temperature range	0 °C to +40 °C rel. humidity 20 – 80 % according IEC/EN 62040-3					
Storage temperature range	-30 °C to +75 °C rel. humidity 20 – 95 %, non-condensing according IEC/EN 62040-3					
Installation height	Up to 1000 m above sea level, without de-rating					
Cable entry	Bottom, top-entry on request					
ENVIRONMENTAL						
Norm	Environmental IEC 60721-3-1, class 1K3/1Z1/1B2/3C2/3S2/3M2 (storage) Environmental IEC 60721-3-2, class 2K3/2Z1/2B2/3C2/3S2/3M2 (transport) Environmental IEC 60721-3-3, class 3K3/3Z1/3B2/3C2/3S2/3M2 (operation)					
STANDARDS						
Safety	IEC 62040-1					
EMC	EN 61000-6-2; EN 61000-6-4; EN 62040-3					
Performance	EN 62040-3; EN 60146-1-1					
Protection	IEC 60529; IEC 60364-4-41					
Environmental	IEC 60721-3-3					
Qualification	via IEC, KTA 3704 via RCC-E 2012 & 2016					

TRANSOKRAFT 3 N1, 110 V

POWER AT COS φ = 0.8 lag (kVA)	20 kVA	40 kVA	60 kVA	80 kVA
Rated DC voltage	110 V +20 %, -20 %			
Current consumption at Ug_{nom}	158 A	315 A	473 A	630 A
Permissible voltage ripple (U_{rms})	<5 % of Ug_{nom}			
Voltage ripple produced by inverter I_{rms} at P_{nom}	<10 % of Ug_{nom}			
Rated AC voltage	(adjustable) other voltages on request			
Deviation stat.	±1 %			
Deviation dyn. (at load surge 0 – 100 % – 0 without mains support)	Voltage dip <3 %			
Settling time	2 ms			
Setting range of the output voltage	±5 %			
Frequency without mains synchronization	50 Hz ±0.1 %; (60 Hz on request)			
Synchronization range	49.5 ... 50.5 Hz, ±1 % (other upon request)			
Power factor range	0 ind. – 1 – 0 cap.			
Nominal current output per phase/cos φ = 0.8 lag	29 A	58 A	87 A	116 A
Voltage curve	Sinusoidal			
Permissible non-linear load	100 %			
Voltage THD factor	<3 % in the entire load and DC voltage range also with non-linear load			
Interference suppression	EN62040 part 2 class C2			
Crest factor	2.5 at full load, higher with part load			
Overload behavior/performance	200 % for 5 sec., 150 % for 1 min; 125 % for 10 min			
Short circuit performance without mains support.	650 % for 2 sec.	500 % for 2 sec.	650 % for 2 sec.	500 % for 2 sec.
Short circuit current/nominal current (I_{SC}/I_{NOM})	Higher inverter short circuit current upon request			
SBS overload behaviour/performance	150 % for 10 min.			
SBS short circuit performance	1000 % for 100 ms			
Efficiency at 100 % nominal load	89.5 %	90.5 %	90 %	91.0 %
Efficiency at 50 % nominal load	90.5 %	91 %	90.5 %	91.5 %
Noise level at a distance of 1 m	<72 dB(A)			
Type of cooling	Forced natural air cooling with integrated underpressure chamber with redundant fans on top			
Coating	Powder-coated RAL 7035 (different color on request)			
Protection class	IP 20 (DIN 40 050) bottom open (different IP on request)			
Dimensions, width	900 mm	900 mm	1200 mm	1200 mm
Dimensions, depth	800 mm			
Dimensions, height	2200 mm			
Weight (depending on configuration)	800 kg	800 kg	1000 kg	1000 kg
Diagnosis plug for annual check for connection of diagnostic device installed				
Operating temperature range	0 °C to +40 °C rel. humidity 20 – 80 % according IEC/EN 62040-3			
Storage temperature range	-30 °C to +75 °C rel. humidity 20 – 95 %, non-condensing according IEC/EN 62040-3			
Installation height	Up to 1000 m above sea level, without de-rating			
Cable entry	Bottom, top-entry on request			
ENVIRONMENTAL				
Norm	Environmental IEC 60721-3-1, class 1K3/1Z1/1B2/3C2/3S2/3M2 (storage) Environmental IEC 60721-3-2, class 2K3/2Z1/2B2/3C2/3S2/3M2 (transport) Environmental IEC 60721-3-3, class 3K3/3Z1/3B2/3C2/3S2/3M2 (operation)			
STANDARDS				
Safety	IEC 62040-1			
EMC	EN 61000-6-2; EN 61000-6-4; EN 62040-3			
Performance	EN 62040-3; EN 60146-1-1			
Protection	IEC 60529; IEC 60364-4-41			
Environmental	IEC 60721-3-3			
Qualification	via IEC, KTA 3704 via RCC-E 2012 & 2016			

Transokraft 1 N1 and 3 N1; 220 V GS

TRANSOKRAFT 1 N1 220 V GS

Cross sectional configurations acc. to DIN 0298, part 4, table 3, routing type B1/ B2

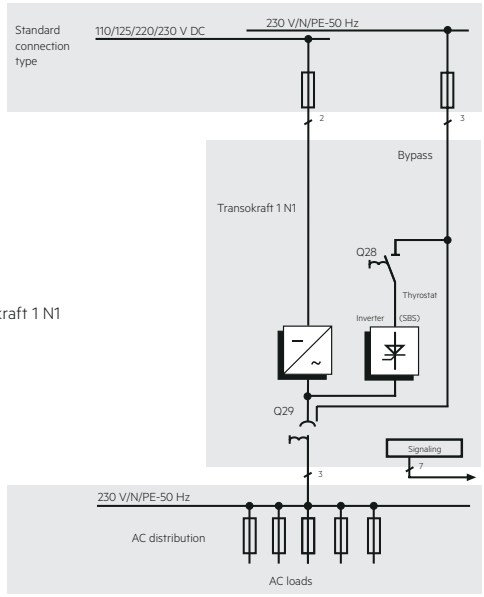
TYPE POWER	10 kVA	20 kVA	40 kVA	60 kVA	80 kVA
Fusing of direct current input (A)	63	100	200	315	400
Min. cross section (mm²)	10	35	95	2 x 70	2 x 95
Max. cross section (mm²)	2 x 95	2 x 185	2 x 185	2 x 185	2 x 185
Direct current input X1	Terminals				
Fusing of bypass (A)	50	160	315	500	630
Min. cross section (mm²)	10	70	2 x 70	2 x 120	2 x 185
Max. cross section (mm²)	2 x 95	2 x 185	2 x 185	2 x 185	2 x 185
SBS (Thyrostat) input X4	Terminals				
Load output X3	Terminals				
Max. fusing of loads (A)	10	25	50	63	100
Min. cross section (mm²)	10	70	2 x 70	2 x 120	2 x 185
Max. cross section (mm²)	2 x 95	2 x 185	2 x 185	2 x 185	2 x 185
Max. cross section of signal cabeling X1 – A12 (mm²)	0.5 – 2.5				

TRANSOKRAFT 3 N1 220 V GS

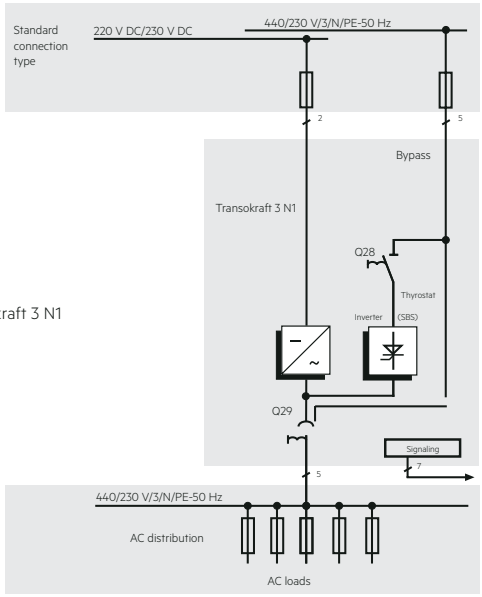
Cross sectional configurations acc. to DIN 0298, part 4, table 3, routing type B1/ B2

TYPE POWER	30 kVA	50 kVA	80 kVA	120 kVA	170 kVA	200 kVA
Fusing of direct current input (A)	160	250	400	630	800	1000
Min. cross section (mm²)	70	120	240	2 x 185	2 x 240	3 x 240
Max. cross section (mm²)	2 x 185	2 x 185	2 x 185	2 x 185	2 x 240	4 x 240
Direct current input X1	Terminals					
Fusing of bypass (A)	100	160	250	315	500	630
Min. cross section (mm²)	35	70	150	2 x 95	2 x 150	2 x 185
Max. cross section (mm²)	2 x 150	2 x 150	2 x 150	2 x 150	2 x 185	2 x 185
SBS (Thyrostat) input X4	Terminals					
Load output X3	Terminals					
Max. fusing of loads (A)	40	63	80	125	160	160
Min. cross section (mm²)	35	70	150	2 x 95	2 x 185	2 x 185
Max. cross section (mm²)	2 x 150	2 x 150	2 x 150	2 x 150	2 x 185	2 x 185
Max. cross section of signal cabeling X1 – A12 (mm²)	0.5 – 2.5					

Transokraft 1 N1



Transokraft 3 N1



Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Киргизия (ак)312-96-26-47
Россия (495)268-04-70
Казахстан (772)734-952-31

www.aeg.nt-rt.ru | | age@nt-rt.ru