

NETWAVE SERIES (3-PHASE)

THREE-PHASE MULTIFUNCTIONAL AC/DC POWER SOURCES



FOR TESTS ACCORDING TO ...

- > AIRBUS
- > BOEING
- > DO 160 Section 16
- > EN 61000-3-11
- > EN 61000-3-12
- > EN 61000-3-2
- > EN 61000-3-3
- > EN 61000-4-13
- > EN 61000-4-14
- > EN 61000-4-17
- > EN 61000-4-27
- > EN 61000-4-28
- > EN 61000-4-29
- > IEC 61000-3-11
- > IEC 61000-3-12 Ed.2:2011
- > IEC 61000-3-2
- > IEC 61000-3-3
- > IEC 61000-4-13
- > IEC 61000-4-14
- > IEC 61000-4-17
- > IEC 61000-4-27
- > ...

NETWAVE - SIMULATION OF THE MOST REQUIRED POWER SUPPLY PHENOMENON

The NetWave Series (3-phase) are three-phase AC/DC power source, specifically designed to meet the requirements as per the standards IEC/EN 61000-4-13, -4-14, -4-27(*) and -4-28. It is also used as a DC power source to cover the requirements as per the standards IEC/EN 61000-4-17 (Ripple on DC) and IEC/EN 61000-4-29 for voltage dips and interruptions on DC supplies. The NetWave series is well suited for testing inverters (e.g. solar power, wind power) and e-vehicles. Additionally, the NetWave series (3-phase) offers the necessary capabilities for avionics testing as per DO-160, Airbus ABD0100 and Boeing as well as per MIL-STD-704.

Optionally the NetWave 3-phase series can be equipped with a power-recovery module to absorb fed-back power (AC/DC) up to nominal power of the NetWave. (*) pre-compliant

HIGHLIGHTS

- > **Wide Power Bandwidth; DC - 5kHz**
- > **Output Power up to 60,000VA AC / 72,000W DC**
- > **Output Voltage up to 3*360V AC (p-n), +/-500V DC**
- > **High Inrush Current Capability**
- > **Power-recovery up to nominal power (optional)**

APPLICATION AREAS

- | | |
|---|--|
|  INDUSTRY |  AVIONICS |
|  MEDICAL |  MILITARY |
|  RESIDENTIAL |  RENEWABLE ENERGY |

TECHNICAL DETAILS

MODEL OVERVIEW

3-PHASE NETWAVE-MODELS	
NetWave 20.x	3-phase Multifunction AC/DC source, 22,500VA AC / 27,000W DC
NetWave 30.x	3-phase Multifunction AC/DC source, 30,000VA AC / 36,000W DC
NetWave 60.x	3-phase Multifunction AC/DC source, 60,000VA AC / 72,000W DC

TECHNICAL DETAILS

NETWAVE 20	
Output voltage	0V - 3*300V AC (p-n) 0V - +/- 425V DC
Output current	26A (RMS) continuous 47A (RMS) short-term (max. 3s) 200A repetitive peak

NETWAVE 20.2	
Output voltage	0V - 3*360V AC (p-n) 0V - 3*620V AC (p-p) 0V - +/- 500V DC
Output current (@ max. 300V AC)	26A (RMS) continuous 47A (RMS) short-term (max. 3s) 200A repetitive peak

NETWAVE 30	
Output voltage	0V - 3*300V AC (p-n) 0V - +/- 425V DC
Output current	33A (RMS) continuous 66A (RMS) short-term (max. 3s) 250A repetitive peak

NETWAVE 30.2	
Output voltage	0V - 3*360V AC (p-n) 0V - 3*620V AC (p-p) 0V - +/- 500V DC
Output current (@ max. 300V AC)	33A (RMS) continuous 66A (RMS) short-term (max. 3s) 250A repetitive peak

TECHNICAL DETAILS

NETWAVE 60	
Output voltage	0V - 3*300V AC (p-n) 0V - +/- 425V DC
Output current	66A (RMS) continuous 100A (RMS) short-term (max. 3s) 400A repetitive peak

NETWAVE 60.2	
Output voltage	0V - 3*360V AC (p-n) 0V - 3*620V AC (p-p) 0V - +/- 500V DC
Output current (@ max. 300V AC)	66A (RMS) continuous 100A (RMS) short-term (max. 3s) 400A repetitive peak

EXTENDED CAPABILITIES FOR NETWAVE	
Simple mode	Optimized control for integration of the Netwave into existing automation environments (for example Matlab)
SourceAC mode	PLL synchronization with other voltage sources
Trigger channel	Extended trigger functions
Segment "Step"	Ramping of voltage and/or frequency in constant time windows
Extern mode	Control of the NetWave by an external control signal

TECHNICAL DETAILS

GENERAL DATA (ALL MODELS)

SPECIFICATIONS	
Output frequency	DC - 5,000Hz
Frequency accuracy, stability	100ppm
Output connectors	Safety lab connectors CEE type 32A (only for NetWave 20.x and NetWave 30.x)
Interfaces	GPIB Ethernet RS 232 (input from DPA analyser) Frame bus (internal system bus)

REGULATION	
Voltage sense	Internal or external, 4 wires
Distortion (THD)	Less than 0.5%, @50/60Hz
Output voltage Stability	Better than 0.1%
Output voltage Accuracy	Better than 0.5%
Max. compensatable drop on wires	5% f.s.
Current limiter	5A to I _{max}
Protection	Over current Over voltage Over temperature Low voltage

WAVEFORM GENERATOR	
Segment types DC	DC, Ramp, Square, Triangle, Sawtooth, Step, Sine, Sine sweep, Sine ramp, Damped sinewave, Sine ripple, Profile, Square sweep, Noise, Sine Dwell, Sinc, Harmonic, Exponent ...
Segment types AC	Sine, Modulation, Sine sweep, Sweep on Sine, Sine up/down, Sine unbalance, Overswing, Sine offset, Sine Dip, Harmonic, Interharmonic, Interharmonic step, Harmonic distortion ...
Segment duration	Unlimited

TRIGGER AND DUT MONITORING	
Trigger	2 inputs, 2 outputs
DUT monitors	2 inputs, configurable

GENERAL DATA (ALL MODELS)

DISPLAY AND CONTROLS	
Display	2-Line LCD, 40 characters
LED indicators	Power On Active output channel Trigger Functional status hard disk
Operation	6 function keys, Test On key: ON/OFF key for the power source

DIMENSIONS (ROLLS AND CRANE SUPPORT INCLUDED)	
NetWave 20.x	approx. 1785 x 930 x 755mm approx. 1785 x 1210 x 755mm (recovery)
NetWave 30.x	approx. 1785 x 930 x 755mm approx. 1785 x 1210 x 755mm (recovery)
NetWave 60.x	approx. 2080 x 1205 x 970mm approx. 2080 x 1615 x 970mm (recovery)

WEIGHT (ROLLS AND CRANE SUPPORT INCLUDED)	
NetWave 20.x	approx. 740kg approx. 810kg (recovery)
NetWave 30.x	approx. 740kg approx. 810kg (recovery)
NetWave 60.x	approx. 1,180kg approx. 1,380kg (recovery)

MAINS	
Supply voltage	3 x 400V (3P,N,PE); optional 3 x 208V (3P,N,PE)
Input current	50A/90A (NetWave 20.x)* 70A/140A (NetWave 30.x)* 140A/212A (NetWave 60.x)* * the higher figure represents the 3s short-term current
Line frequency	45Hz - 65Hz
Connectors	Screwed terminals

AMBIENT CONDITIONS	
Temperature	0°C - 40°C
Rel. humidity	10% - 90%, non condensing

TECHNICAL DETAILS

OPTIONS

OPTIONAL SOFTWARE

NW3 License 1	Software license for DO-160 standard for NetWave-series (3-phase)
NW3 License 2	Software license for MIL-STD-704 standard for NetWave-series (3-phase)
NW3 License 3	Software license for AIRBUS standards for NetWave-series (3-phase)
NW3 License 4	Software license for analysis functions as min., max., average and ..., power and harmonic measurement, (requires the option "NWBoard")
NW3 License 5	Software license for BOEING standards for NetWave-series (3-phase) Requires Netwave model for 360VAC

NW-BOARD MEASURING MODULE

Channels	Built in 6 channel (3-phase) measurement board for 3* voltage 3* current
Voltage ranges	25V, 50V, 100V, 250V, 550V, unipolar or bipolar
Current ranges	10A, 25A, 50A, 100A, 220A, unipolar or bipolar
Resolution	16 Bit
Accuracy	Voltage: better than 0.2% Current: better than 0.5%
Frequency range	DC - 100kHz
Sampling rate	5Hz - 200kHz, selectable
Memory	Min. 40GB on hard disk, File size max. 1GB

OPTIONS

POWER RECOVERY (OPTION POWERRECOVERY 20/30, 60)

	Available for all 3-phase NetWave models
Mains voltage	400V +/- 10% (45Hz - 65Hz)
Recoverable power	up to nominal AC/DC power of the individual NetWave model
NetWave 20.x	Max. 22.5kVA AC / 27kW DC 26A (RMS) continuous 47A (RMS) short max. 3s 200A repetitive peak
NetWave 30.x	Max. 30kVA AC / 36kW DC 33A (RMS) continuous 66A (RMS) short max. 3s 250A repetitive peak
NetWave 60.x	Max. 60kVA AC / 72kW DC 66A (RMS) continuous 100A (RMS) short max. 3s 400A repetitive peak
Power factor	> 0.92 (cos phi) at full load

PARALLEL MODE HARDWARE (OPTION PARALLELMODE 20/30, 60)

Parallel Mode	The parallel mode will connect all three internal sources together in parallel. The common 1-phase output is on a separate terminal block for EUT connection. During parallel mode the 3-phase terminals are disconnected from the source.
NetWave 20.x	78A (RMS) continuous 141A (RMS) short max. 3s 600A repetitive peak
NetWave 30.x	99A (RMS) continuous 198A (RMS) short max. 3s 750A repetitive peak
NetWave 60.x	198A (RMS) continuous 300A (RMS) short max. 3s 1200A repetitive peak

TECHNICAL DETAILS

OTHER SOLUTIONS

OTHER MODELS

NetWave Series (1-phase)	Single phase Multifunction AC/DC Power sources, up to 7,500VA AC and 9,000W DC
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OTHER EQUIPMENT

DPA 503N	3-phase Harmonics and Flicker analyzer
AIF 503N16	3-phase flicker impedance, 3x400V, 16A 0.24ohm + j0.15ohm (Lines) 0.16ohm + j0.10ohm (Neutral)
AIF 503N32	3-phase dual-impedance, 3x400V, 32A Zref: 0.24ohm + j0.15ohm (Lines) 0.16ohm + j0.10ohm (Neutral) Ztest: 0.15ohm + j0.15ohm (Lines) 0.10ohm + j0.10ohm (Neutral)
AIF 503N63	3-phase dual-impedance, 3x400V, 63A Zref: 0.24ohm + j0.15ohm (Lines) 0.16ohm + j0.10ohm (Neutral) Ztest: 0.15ohm + j0.15ohm (Lines) 0.10ohm + j0.10ohm (Neutral)
AIF 503N75	3-phase dual-impedance, 3x400V, 75A Zref: 0.24ohm + j0.15ohm (Lines) 0.16ohm + j0.10ohm (Neutral) Ztest: 0.15ohm + j0.15ohm (Lines) 0.10ohm + j0.10ohm (Neutral)

COMPETENCE WHEREVER YOU ARE



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Information about scope of delivery, visual design and technical data correspond with the state of development at time of release. Technical data subject to change without further notice.