



# DAC60000 2U SERIES

48/60VDC Stand-alone Inverters with High Intelligence



# Stand alone applications Parallel connected systems Natural cooled 1000VA/700W modules Fan cooled 1200VA/1200W modules Both On-line and Off-line applications

Real redundant, Fault tolerant system
Small size, light weight, standard 19" rack
High efficiency (90%)
High overload capability
User programmable features

Remote monitoring through RS-232 with standard PC

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STAND ALONE INVERTERS						
Туре	DC input	Nominal	Nominal	Cooling	Dimensions	Weight
	Range	AC output	Power		Without handles	
DAC60134HF	4072VDC	230VAC, 50Hz	1000VA/700W	Convection	19" x 2U x 280mm	7 kg
DAC60234HF	4072VDC	230VAC, 50Hz	1200VA/1200W	Forced, fan	19" x 2U x 280mm	7 kg

PARALLEL CONNECTABLE INVERTERS							
Туре	DC input	Nominal	Nominal	Cooling	Dimensions	Weight	
	Range	AC output	Power		Without handles		
DAC62134HF	4072VDC	230VAC, 50Hz	1000VA/700W	Convection	19" x 2U x 280mm	7 kg	
DAC62234HF	4072VDC	230VAC, 50Hz	1200VA/1200W	Forced, fan	19" x 2U x 280mm	7 kg	

STATIC SWITCH + MANUAL BYPASS				
Туре	Description			
MSR7990+BPU69130VF	External static switch, 6000VA 230VAC, 19" x 2U x 372mm			
MBP68200	See separate datasheets for 2U manual bypass solutions			

ACCESSORIES				
Туре	Description			
8760037	Remote monitoring software in CD and RS232 cable between DAC60000 inverter and Computer			
8760038	Communication system bus cable for 16 modules			
8760039	Power cable between 6kVA static switch and inverter			

### **AC-DISTRIBUTION**

See separate datasheets for AC-distribution solutions

### The Inverter packing includes following:

- 1) Inverter
- 2) AC output connector (finger protected screw terminals)
- 3) DC input cable  $3m 6mm^2$
- 4) User manual
- 5) Grounding cable  $3m 6mm^2$

### The Static Switch packing includes:

- 6) Static Switch
- 7) Mains Input cable 2m 4,5 mm<sup>2</sup>
- 8) AC output cable  $2m 4,5 mm^2$
- 9) Grounding cable  $2m 6mm^2$

#### To be ordered separately

- 10) RemoteMonitor software in CD and Remote monitoring cable PC-Inverter(s)
- 11) Parallel connecting cable for 2-6 modules
- 12) Power cable static switch inverters  $1m 1,5 mm^2$





INVERTERS         48 VDC / 230 VAC 1000 VA         48 VDC / 230 VAC 1200 VA           ELECTRICAL         40-72 VDC           Input voltage         User programmable (PCRS-232) start-up and short down voltage limits and delays           Input voltage         22 Annas (continuous)         53 Annas (continuous)           Output voltage         0. Annas (5.5)         90 Annas (5.5)           Inrob current         < 20 A         < 20 A           Output voltage         Nominal 200 VAC since wave, user programmable 40 - 70 Hz, crystal locked           Nominal voltage         Nominal 4.4A         Nominal 52 VAC 1200W           Output opower         1000VA / 700W         1200VA / 1200W           Output opower         1000VA / 100W         90 %           Load power finder range         Full power raining from 0 inductive to 0 capacitive           Total harmonic distortion, resistive load         2 %         < 2 %           Cest factor         - 23 N         < 27           Static regulation, 0100W, Indd         + 4/3%         + + 3%           Taniser processing 100 VAC (2000 VDC)         < 2 mV         < 2 mV           Boltation         Input-Chassis 1500 VAC (2000 VDC)         < 2 mV           Overload         20 with // 9 with // 5 seconds         Max time canhe linuited shorter, 110% // 60 s is always available	SPECIFICATION						
ELECTRICAL         40-72 VDC           Input voltage         40-72 VDC           Input voltage         User programmable (PCRS-522) star-up and duit dow woltage limits and delays           Input current         22 Anns: (continuous)         35 Anas: (5)           Invab current         22 Anns: (continuous)         35 Anas: (5)           Invab current         22 Anns: (continuous)         90 Anas: (5)           Output voltage         Nominal 230 VAC sine wave, user programmable 200-240V, floating couput           Output voltage         Nominal 44A         Nominal 52A           Monital 44A         Nominal 52A         Short circuit max 13 A / min 1 sec           Fifcioncy         90 %         28 (and 24	INVERTERS	48VDC/230VAC 1000VA	48VDC / 230VAC 1200VA				
DELECTRICAL         40-72 VDC           Input voltage         User programmable (PC/RS-232) star-up and durit down voltage limits and delays           Input current         22 Attax (continuous)         35 Attax (continuous)           Soft and Continuous         50 Attax (5 s)         50 Attax (5 s)           Inrush current         <20 A         <20 A           Output trougneey         Nominal 200 VAC sine wave, user programmable 0: 70 LBL, crystal locked         Nominal 30 VAC sine wave, user programmable 0: 70 LBL, crystal locked           Nominal output power         1000VA / 700W         1200VA / 1200W         Output current           Adaptore factor tange         Full power taining from 0 inductive to 0 capacitive         Total power factor tange         90 %         90 %           Load power factor tange         Full power taining from 0 inductive to 0 capacitive         <2.2 %         <2.2 %          <2.2 %							
might "outing?         User programmable (PC/RS-232) start-up and all down voltage limits and delays           liput current         22 Amax (continuous)         35 Amax (continuous)           Output voltage         Nominal 230 VAC sine wave, user programmable 20-200, flating output           Output voltage         Nominal 230 VAC sine wave, user programmable 20-200, flating output           Output voltage         Nominal 230 VAC sine wave, user programmable 20-200, flating output           Output voltage         Nominal 320 VAC sine wave, user programmable 20-200, flating output           Output voltage         Nominal 4.4A           Nominal 4.4A         Nominal 5.2A           Short circuit max 13 A rim 1 see         Efficiency           90 %         90 %           Load power factor factor         <2.2 %	ELECTRICAL	4	0.72 VDC				
Input current         22 Amax (continuous)         35 Amax (continuous)           50 Amax (5 s)         50 Amax (5 s)           Inrush current         < 20 A	input voitage	40-72 VDC User programmable (PC/RS-232) start-up and shut down voltage limits and delays					
Incush current         <20 A	Input current	22 Amax (continuous) 50 Amax (5 s)	35 Amax (continuous) 50 Amax (5 s)				
Output voltage         Nominal 230 VAC sine wave, user programmable 200-240V, for noning output           Output frequency         Nominal 30 Hz, user programmable 40 - 70 Hz, crystal locked           Nominal output power         1000VA / 700W         1200VA / 1200W           Output current         Nominal 3 A / min 1 see         Short circuit max 13 A / min 1 see           Efficiency         90 %         90 %         2 %           Crest factor         > 3         > 2.7         Static regulation, 0100%, load         +/:3%         4/:3%           Tatal harmonic distortion, resistive load         < 2 %	Inrush current	< 20 A	< 20 A				
Output frequency         Nominal 50 Hz, user programmable 40 - 70 Hz, crystal lacked           Nominal origut power         100WA / 700W         120WA / 120WA           Output current         Nominal 4.4A         Nominal 5.2A           Short circuit max 13 A / min 1 see         Short circuit max 13 A / min 1 see         Short circuit max 13 A / min 1 see           Efficiency         90 %         90 %         90 %           Load power factor range         Full power raining from 0 inductive to 0 capacitive         Total harmonic distortion, resistive load         < 2 %	Output voltage	Nominal 230 VAC sine wave, use	r programmable 200-240V, floating output				
Nominal output power         1000VA / 700W         1200VA / 1200W           Output current         Nominal 4 AA         Nominal 5 2A           Short circuit max 13 A / min 1 sec         Efficiency         90 %	Output frequency	Nominal 50 Hz, user progr	rammable 40 - 70 Hz, crystal locked				
Output current         Nominal 4.4 A         Nominal 5.2 A           Efficiency         90 %         Short circuit may 1.3 A / min 1 sec         Short circuit may 1.3 A / min 1 sec           Efficiency         90 %         90 %         90 %           Load power factor range         Full power rating from 0 inductive to 0 capacitive         90 %         <2 %	Nominal output power	1000VA / 700W	1200VA / 1200W				
Short circuit max 15 A / min 1 sec         Short circuit max 15 A / min 1 sec           Efficiency         90 %         90 %           Load power factor range         Full power rating from 0 inductive to 0 capacitive         90 %           Total harmonic distortion, resistive load         < 2 %	Output current	Nominal 4.4A	Nominal 5.2A				
Efficiency     90 %     90 %       Load power factor range     Full power rating from 0 inductive to 0 capacitive       Total harmonic distortion, resistive load     <2 %		Short circuit max 13 A / min 1 sec	Short circuit max 13 A / min 1 sec				
Load power factor range       Full power rating from 0 inductive to 0 capacitive         Total harmonic idiostrion, resistive load       < 2 %	Efficiency	90 %	90 %				
Total harmonic distortion, resistive load       < 2.%	Load power factor range	Full power rating from 0 inductive to 0 capaciti	ve				
Crest factor       > 3       > 2.7         Static regulation, 0100% load       +r-3%       +r-3%         Transient recovery       < 0.3 ms	Total harmonic distortion, resistive load	< 2 %	< 2 %				
Static Equilation, U., 100% ioad       +/-3%       +/-3%         Transient recovery       < 0.3 ms		> 3	> 2.1				
Italistein Tecovery       < 0.5 its	Static regulation, 0100% load	+/-3%	+/-3%				
Footment insist input       C 2 mV         Input-Chassis 1500 VAC (2000 VCD)         Input-Chassis 1500 VAC (2000 VDC)         Overload       240 % (1700 W) / 5 seconds         Max time can be limited shorter, 110% /60 s is always available         Number of restart attempts and delays are user programmable         Protection       Output current limiting         Overload and short circuit proof         Input and output fuses         Additionally external fuse max C40A must be used in supply of each inverter module         STANDARDS         Safety         EN 60950-1         Static Switch: As invertes except immunity: EN1000-6-3, EN51000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As invertes except immunity: EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS         LED-Indications         Input ON Output Ioading, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault         Relay alarms       2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output Voltage, over load, faults etc.         MECHANICAL       See first page         Connectors in front panel       Input: Sign protected AC-connector, Milead ST18/S2         Enclosure       Steel casing IP20	Profomatria poise input	< 0.5 ffls	< 0.5 ms				
Impart-Output 3000 VAC (4000 VDC)         Overload       240 % (1700 W) / 5 seconds       [140 % (1700 W) / 5 seconds         Max time can be limited shorter, 110% /60 s is always available         Number of restart attempts and delays are user programmable         Protection       Overload abort circuit proof         Input and output fixes         Additionally external fixes max C40A must be used in supply of each inverter module         Status         Staty         EN 60950-1         EMC         Inverters: EN 55022B, EN61000-6-3, EN61000-6-1, other immunity standards EN61000-6-2         ENC         Statics         Statics         EN61000-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         EN50100-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         ELD-Indications       Input ON         Output ON       Output ON         Output ON       Output ON         Output ON       Eauli in system summary alarm (module failure, DC input low etc.)         Finalt in system summary alarm (module failure, DC input low etc.)         Finalt in system summary alarm (module failure, DC input low etc.)         Finalt in system summary alarm (module failure, DC input low etc.)         Finalt in system sumary alarm (module failure, DC input low etc.	Isolation	< 2 III V	< 2 111 V				
Output-Chassis 1500 VAC (2000 VDC)           Overload         240 % (1700 W) / 5 seconds         [140 % (1700 W) / 5 seconds           Number of restart attempts and delays are user programmable         Number of restart attempts and delays are user programmable           Protection         Output-Chassis 1500 VAC (2000 VDC)           Status         Output current limiting           Overload and short circuit proof Input and output fuses         Additionally external fuse max C40A must be used in supply of each inverter module           Status         Status for and the second mumulation of the se	isolation	Input-Output 3000 VAC (4000 VDC)					
Overload         240 % (1700 W) / 5 seconds         [140 % (1700 W) / 5 seconds           Overload         240 % (1700 W) / 5 seconds         [140 % (1700 W) / 5 seconds           Max time can be limited shorter, 110% /60 s is always available         Number of restart attempts and delays are user programmable           Protection         Output current limiting         Overload and short circuit proof           Input and output fuses         Additionally external fuse max C40A must be used in supply of each inverter module           State         State         State           Dutput ON         Output ON         Output ON           Output ON         Output on         Output ON           Output ON         Output on         State           Output State         State         State           Pault         State         State           Relay contacts:         Fault         Fault           Pault         State         State           Relay contacts:         Fault         Statastan formation: For example		Output-Chassis 1500 VAC (2000 VDC)					
Overload       240 % (1/00 W) / 5 seconds         Max time can be limited shorter, 110% /00 is always available         Number of restart attempts and delays are user programmable         Protection       Output current limiting         Overload and short circuit proof         Input and output fuses         Additionally external fuse max C40A must be used in supply of each inverter module         Stafety         EN 60950-1         EMC       Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As inverters except immunity:         EN61000-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS         LED-Indications       Input ON         Output toding, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault       Pault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output oN indication (system without bypass)         Relay calarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failu			240 % (1700 W) / 5 seconds $140 % (1700 W) / 5$ seconds				
Number of restart attemptis and delays are user programmable         Protection         Output current limiting         Overload and short circuit proof         Input and output fuses         Additionally external fuse max C40A must be used in supply of each inverter module         Status         Status         Safety         EN 60950-1         EMC         Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As inverters except immunity:         EN61000-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS         LED-Indications       Input ON         Output loading, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Remote monitoring through RS-232       Status information: For example input voltage, power, temperature, faults etc.         MECHANICAL       Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2       Enclosu	Overload	240% (1/00%) / 5 seconds $140% (1/00%) / 5$ seconds Max time can be limited shorter $110% / 60$ s is always available					
Protection Output current limiting Overload and short circuit proof Input and output fuses Additionally external fuse max C40A must be used in supply of each inverter module STANDARDS Safety EN 60950-1 EMC Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511 Static Switch: As inverters except immunity: EN61000-6-1, other immunity standards EN61000-6-2 ENC ALARMS, INDICATIONS AND CONTROLS LED-Indications Input ON Output loading, 4 levels: >5%, >30%, >50%, >80% Overload / Fault Relay alarms 2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output ON indication (system without bypass) Relay contact rating: 60VDC/1A Remote monitoring software) Parameter adjustment: For example input voltage, power, temperature, faults etc. Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc. MECHANICAL Dimensions See first page Connector, Anderson SB50 6319 or UMA S50 50 A DC Output: Finger protected AC-connector, Wieland ST18/3S2 Enclosure ENVIRONMENTAL Operating temperature 045 C full power, 4560 C reduced power, derating -2%/C typically		Number of restart attempts and delays are user programmable					
STANDARDS         Safety       EN 60950-1         EMC       Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As inverters except immunity:       EN61000-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS       Input ON         Output ON       Output ON         Output ON       Output ON         Output Ioading, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Relay contact rating: 60VDC/1A         Remote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2       Enclosure         Enclosure       Steel casing IP20	Protection	Output current limiting Overload and short circuit proof Input and output fuses Additionally external fuse max C40A must be u	used in supply of each inverter module				
STADARDS         Safety       EN 60950-1         EMC       Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As inverters except immunity:       EN61000-6-1, other immunity standards EN61000-6-2         ALARMIS, INDICATIONS AND CONTROLS       Input ON         Output ON       Output ON         Output ON       Output ON         Output ON       Output ON         Overload / Fault       Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Reenote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         MECHANICAL       Dimensions         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2       Enclosure         Enclosure       Steel casing IP20							
Safety       EN 60950-1         EMC       Inverters: EN 55022B, EN61000-6-3, EN61000-6-2, ETS 300 132-2, BTNR 2511         Static Switch: As inverters except immunity:       EN61000-4-3 radiated immunity according to EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS       Input ON         LED-Indications       Input ON         Output I oading, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Remote monitoring through RS-232         (Remote monitoring software)         Parameter adjustment: For example input and output voltage, power, temperature, faults etc.         MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL       On-45 C full power, 4560 C reduced power, derating -2%/C typically         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically	STANDARDS	2222 coose d					
EMC       Inverters: EN 53022B, EN61000-6-2, EN 5300 132-2, BTNR 2511         Static Switch: As invertes except immunity:       EN61000-6-1, other immunity standards EN61000-6-2         ALARMS, INDICATIONS AND CONTROLS       Input ON         Qutput Ioading, 4 levels: >5%, >30%, >50%, >80%       Overload / Fault         Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)       Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Remote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         MECHANICAL       Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2       Enclosure         Enclosure       Steel casing IP20	Safety	EN 60950-1	) C A ETE 200 122 A ETNE 2511				
ALARMS, INDICATIONS AND CONTROLS         LED-Indications       Input ON Output Ioading, 4 levels: >5%, >30%, >50%, >80% Overload / Fault         Relay alarms       2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output ON indication (system without bypass) Relay contact rating: 60VDC/1A         Remote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         (Remote monitoring software)       Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL       Dimensions         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL       045 C full power, 4560 C reduced power, derating -2%/C typically         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically		Static Switch: As inverters except immunity: EN61000-4-3 radiated immunity according to H	2-6-2, E1S 300 132-2, B1NK 2311 EN61000-6-1, other immunity standards EN61000-6-2				
LED-Indications       Input ON         Output I Dading, 4 levels: >5%, >30%, >50%, >80%         Overload / Fault         Relay alarms       2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output ON indication (system without bypass) Relay contact rating: 60VDC/1A         Remote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         (Remote monitoring software)       Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL       Dimensions         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL       Operating temperature         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically	ALARMS INDICATIONS AND CONTR	OLS					
Overload / Fault         Relay alarms       2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output ON indication (system without bypass) Relay contact rating: 60VDC/1A         Remote monitoring through RS-232       Status information: For example input and output voltage, power, temperature, faults etc.         Parameter adjustment: For example input and output voltage, over load, faults etc.         MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL       Operating temperature         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically	LED-Indications	Input ON Output ON Output loading, 4 levels: >5%, >30%, >50%, >80%					
Relay alarms       2 relay contacts:         Fault in system summary alarm (module failure, DC input low etc)         Primary supply failure (system with bypass) or Output ON indication (system without bypass)         Remote monitoring through RS-232         (Remote monitoring software)         Parameter adjustment: For example input and output voltage, power, temperature, faults etc.         Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL       045 C full power, 4560 C reduced power, derating -2%/C typically         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically		Overload / Fault					
Remote monitoring through RS-232 (Remote monitoring software)       Status information: For example input and output voltage, power, temperature, faults etc.         Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         Environmentation       045 C full power, 4560 C reduced power, derating -2%/C typically         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically	Relay alarms	2 relay contacts: Fault in system summary alarm (module failure, DC input low etc) Primary supply failure (system with bypass) or Output ON indication (system without bypass) Relay contact rating: 60VDC/1A					
(Remote monitoring software)       Parameter adjustment: For example input voltage limits, output voltage, over load, faults etc.         MECHANICAL	Remote monitoring through RS-232	Status information: For example input and output voltage, power, temperature, faults etc.					
MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically         Control of the second	(Remote monitoring software)	Parameter adjustment: For example input voltage	ge limits, output voltage, over load, faults etc.				
MECHANICAL         Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically         Construction       Dimension							
Dimensions       See first page         Connectors in front panel       Input: 50A DC connector, Anderson SB50 6319 or UMA S50 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically         Construction       Number of the state of the	MECHANICAL						
Connectors in front panel       Input: 30A DC connector, Anderson SB30 6319 or UMA 530 50 A DC         Output: Finger protected AC-connector, Wieland ST18/3S2         Enclosure       Steel casing IP20         ENVIRONMENTAL         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically         Context of the state of t	Dimensions	See first page	0 UNA 050 50 A DC				
Enclosure     Steel casing IP20       ENVIRONMENTAL     045 C full power, 4560 C reduced power, derating -2%/C typically	Connectors in front panel	Output: Finger protected AC-connector Wieland ST18/3S2					
ENVIRONMENTAL Operating temperature 045 C full power, 4560 C reduced power, derating -2%/C typically	Enclosure	Steel casing IP20					
ENVIRONMENTAL         Operating temperature       045 C full power, 4560 C reduced power, derating -2%/C typically         Construction       Number of the second secon		Steel cusing if 20					
Operating temperature 045 C full power, 4560 C reduced power, derating -2%/C typically	ENVIRONMENTAL						
	Operating temperature	045 C full power, 4560 C reduced power,	derating -2%/C typically				
Cooling Natural convection Forced cooling, Natural convection monitored redundant fans	Cooling	Natural convection	Forced cooling, monitored redundant fans				
Humidity 595%, non condensing	Humidity	595%, non condensing	14115				
Altitude Full power up to 2000m, derating -2% / 100m, max altitude 3000m	Altitude	Full power up to 2000m, derating -2% / 100m, max altitude 3000m					



## DATASHEET

# 



Parallel connection

Stand-alone

### **EXPANDING SYSTEM**



### **RS-232 AND SYSTEM BUS**



### **REMOTE MONITORING SOFTWARE**

Uniter         Samo         Last event         Fault:         Dutput (w)         Dutput (w)         Loudrop (a)         Loudrop (b)         Dutput (b)	1 Site F 58 °C/1 F 57 °C/1 F 59 °C/1				
System         On default supply         -         1740 W         1770 VA         7.6 A         82 %         228 V         50.0 Hz         51.6 V         39.4           Unit         Output on         Output on State and based on         -         580 W         580 VA         25.A         82 %         228 V         50.0 Hz         51.6 V         39.4           Unit         Output on         Output on State and based on         -         580 W         580 VA         25.A         82 %         228 V         50.0 Hz         51.6 V         13.4         50.1 CM M           Unit         Output on Control and based on         -         580 VA         25.0 A         82 %         228 V         50.0 Hz         51.6 V         13.4         50.1 CM M	F 58 °C/1: F 57 °C/1: F 59 °C/1:				
Uni1 Dudput on Dudput witched on - 580 W 580 VA 25A 82% 229 V 50.0 Hz 516 V 13A 5910/13 Uni2 Dudput on Dudput witched on - 580 W 580 VA 25A 82% 229 V 50.0 Hz 516 V 13A 5910/13	F 58°C/1: F 57°C/1: F 59°C/1:				
Unit 2 Output no. Output nutribard no	*F 57 *C/1:				
	*F 59.10/1:				
Unit 3 Dutput on Dutput switched on - 580 W 600 VA 2.6 A 83% 228 V 50.0 Hz 51.6 V 13 A 58 °C/136					
	•				
Bypass Status Last event General faults AC supply faults Inver Inverte Mains (V) Mains (Hz) Output Output Output Output	Sitemp Led:				
Bypass On inverter Switched to inverters	C/90 'F				
	2				
Bebold List System Parameters History Status: Not connected					
Connection. Invester Parameters. Unit Control.					
Bisconnect Bypass Parameters Updaye Reservoid.	<u>E</u> xit				



Parallel with external static switch, On-line and Off-line applications

### More power needed or unit replacement

- No need to shut down system output
- 1) Connect cables: DC cable, AC cable, System bus
- 2) Turn new unit on
- Automatically enters system
- Automatically adapts system parameters (voltage, frequency etc.)
- Automatically turns output on if the system output is on

Single 9 pin female D-connector

- Standard 4 pins for RS-232 for communication with a PC
- 2 pins for internal system communication

Single 9-pin flat cable

- male D-connectors for inverters
- one female connector for connecting PC or similar expansion cable

Continuous status information from all units:

- Output on/standby, voltage, current, power, loading per cent
- Input voltage and current Internal temperatures, led and button status, faults

Parameter adjustment (without turning system output off):

Inverter start up and shut down input voltage limits, reaction delays

- Output voltage and frequency, restart attempts after overload shut down
- Bypass synchronising frequency range, accepted mains voltage range etc.

History file reading for last 30-40 events per module Unit control to remote control or to read diagnostics

Software updates to update or add features for DAC60000 inverters

### RELIABILITY

Real redundancy - No single failure may fail the system No external controller

- No other master slave dependence but synchronising
- If synchronising master fails, next unit starts sending the synchronising data

Rugged system bus structure with galvanic isolation

- Automatic bus address configuring
- No need for address setup by user
- No malfunctions because of wrong setup

Self tests and diagnostics

- Full automatic power stage test every time inverter is started
- Continuous monitoring of internal operations
- Error counters (RS-232) for troubleshooting
- Recognising of wrong connections (cable not connected, wrong AC bus polarity)

Recovery and monitoring procedures in hardware and software Stands disturbances in system bus

- Stands accidental system bus disconnecting for seconds Stands wrong connections of cables
- If one unit fails other units alarm
- Voting procedures for recognising and filtering wrong operation

Automatic fast shut down of failed unit

- Disconnecting from AC bus in 10 ms
- Automatic watch dog restart if processor hangs up
- Unit automatically turns output off if synchronising lost for too long time

Internal history file in each inverter, last 30-40 system and unit specific events

### **COMPLETE INVERTER SYSTEMS, AC-DISTRIBUTION AND MANUAL BYPASS**



19" sub-rack systems 1-20 inverters up to 24kVA Static Switch, manual bypass AC- and DC-distribution 1-pole MCBs, 2-pole MCBs, Schuko outlets, RCD



19" 1U IEC320 distribution AC-distribution, load monitoring and parallel connection units

Please contact Powernet for customized inverter system configurations