

Certificate of Compliance

Certificate: 1873035

Master Contract: 159409

Project: 2334807

Date Issued: October 27, 2010

Issued to: Xantrex Technology Inc
 161 South Vasco Rd, Suite G
 Livermore, CA 94551
 USA
 Attention: Ralph McDiarmid

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Chih Wu

Issued by: Chih Wu, Eng'g Technologist

PRODUCTS

- CLASS 5311 09** - POWER SUPPLIES - Distributed Generation Power Systems Equipment
- CLASS 5311 89** - POWER SUPPLIES - Distributed Generation - Power Systems Equipment
- Certified to U.S. Standards

PART A: Combined Inverter/Battery Charger, permanently connected:

Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW6048-120/240-60, with Conduit Box supplied, is permanently connected, fixed equipment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	57 V dc (Input) 264 V ac (Output)	60 V dc (Output) 280 V ac (Input)	60 V dc (Input) 240 V ac (Output)
Range of Operating DC Voltage	47 - 58 V dc	40 - 60 V dc	42 - 60 V dc
Max. Operating Current (DC)	160 A	100 A	160 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A
	>0.98	>0.98	0 - 1.00



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Output Power Factor Rating			
Operating Voltage Range (AC)	211 - 264 V ac	156 - 280 V ac	120/240 V ac
Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz
Nominal Output Voltage (AC)	240 V ac	50.4 V dc	120/240 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	30 Arms	100 Adc	25 Arms
Maximum Continuous Output Power (AC)	6000 W	5600 W	6000 W
Maximum Output Fault Current and Duration	425A pk ~0.4 milliseconds	5150A pk ~1 milliseconds	925A pk ~0.5 milliseconds
Maximum Output Overcurrent Protection	60 A	250 A	30 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N +/-0.05 Hz +/-15% trip time	N/A	N/A
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW6048 (865-1000)
Protection & Main processor (Texas Instruments)	V1.07.00 BN3

Notes:



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1. Derated operation for elevated ambient temperatures: rated 6000 W continuous from -25°C to 40°C, Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual for derating curves.

2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times:

Voltage and frequency limits for utility Interaction

Condition	Simulated utility source Voltage (V)	Simulated utility source Frequency (Hz)	Maximum time (sec) (cycles) at 60 Hza before cessation of current to the simulated utility
A	$< 0.50 V_{norb}$	Rated	0.16
B	$0.50 V_{norb} \leq V < 0.88 V_{nor}$	Rated	2
C	$1.10 V_{norb} < V < 1.20 V_{nor}$	Rated	1
D	$1.20 V_{nor} \leq V$	Rated	0.16
E	Rated	$f > 60.5$	0.16
F	Rated	$f < (59.8 - 57.0)$ (Adjustable Set Point)	0.16 - 300 (Adjustable)
G	Rated	$f < 57.0$	0.16

3. All models meet the surge requirements of IEEE C62.41.2-2002, Location Category B (6kV). Tests were done using ringwave and combination waveforms, both polarities, for common mode and differential mode coupling, 20 pulses each test. After surge testing the unit was operational with control functionally verified by frequency and voltage disconnect tests.

PART B: Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW4024-120/240-60, with Conduit Box supplied, is permanently connected, fixed equipment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	29 V dc (Input)	32 V dc (Output)	32 V dc (Input)
	264 V ac (Output)	264 V ac (Input)	264 V ac (Output)
Range of Operating DC Voltage	23 - 29 V dc	22 - 32 V dc	22 - 30 V dc
Max. Operating Current (DC)	220 A	150 A	220 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A



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Output Power Factor Rating	>0.98	>0.98	0 - 1.00
Operating Voltage Range (AC)	211 - 264 V ac	120/240 V ac	120/240 V ac
Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz
Nominal Output Voltage (AC)	240 V ac	25.2 V dc	120/240 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	18 Arms	150 Adc	18 Arms
Maximum Continuous Output Power (AC)	4000 W	4000 W	4000 W
Maximum Output Fault Current and Duration	80A pk ~25 milliseconds	6500A pk ~1 milliseconds	25A rms ~330 milliseconds
Maximum Output Overcurrent Protection	60 A	250 A	60 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N +/-0.05 Hz +/-15% trip time	N/A	N/A
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW4024 (865-1010)
Firmware 1 Processor	V1.07.00 BN3

Notes:



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1. Derated operation for elevated ambient temperatures: rated 4000 W continuous from -25°C to 40°C Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual.

2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times:

Voltage and frequency limits for utility Interaction

Condition	Simulated utility source Voltage (V)	Simulated utility source Frequency (Hz)	Maximum time (sec) (cycles) at 60 Hza before cessation of current to the simulated utility
A	$< 0.50 V_{norb}$	Rated	0.16
B	$0.50 V_{norb} \leq V < 0.88 V_{nor}$	Rated	2
C	$1.10 V_{norb} < V < 1.20 V_{nor}$	Rated	1
D	$1.20 V_{nor} \leq V$	Rated	0.16
E	Rated	$f > 60.5$	0.16
F	Rated	$f < (59.8 - 57.0)$ (Adjustable Set Point)	0.16 - 300 (Adjustable)
G	Rated	$f < 57.0$	0.16

3. All models meet the surge requirements of IEEE C62.41.2-2002, Location Category B (6kV). Tests were done using ringwave and combination waveforms, both polarities, for common mode and differential mode coupling, 20 pulses each test. After surge testing the unit was operational with control functionally verified by frequency and voltage disconnect tests.

PART C: Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW4548-120/240-60, with Conduit Box supplied, is permanently connected, fixed equipment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	58 V dc (Input) 264 V ac (Output)	64 V dc (Output) 264 V ac (Input)	64 V dc (Input) 264 V ac (Output)
Range of Operating DC Voltage	46 - 58 V dc	44 - 64 V dc	44 - 64 V dc
Max. Operating Current (DC)	120 A	85 A	120 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A



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Output Power Factor Rating	>0.98	>0.98	0 - 1.00
Operating Voltage Range (AC)	211 - 264 V ac	120/240 V ac	120/240 V ac
Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz
Nominal Output Voltage (AC)	240 V ac	50.4 V dc	240 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	20 Arms	85 Adc	20 Arms
Maximum Continuous Output Power (AC)	4500 W	4500 W	4500 W
Maximum Output Fault Current and Duration	425A pk ~0.4 milliseconds	5150A pk ~1 milliseconds	925A pk ~0.5 milliseconds
Maximum Output Overcurrent Protection	60 A	250 A	30 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N +/-0.05 Hz +/-15% trip time	N/A	N/A
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW4548 (Xantrex part no. 865-1005)
Protection & Main processor (Texas Instruments)	V1.07.00 BN3

Notes:



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1. Derated operation for elevated ambient temperatures: rated 4500 W continuous from -25°C to 40°C. Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual for derating curves.

2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times:

Voltage and frequency limits for utility Interaction

Condition	Simulated utility source	Maximum time (sec) (cycles) at 60 Hza before cessation of current to the simulated utility
Voltage (V)	Frequency (Hz)	
A	$< 0.50 V_{norb}$	Rated
B	$0.50 V_{norb} \leq V < 0.88 V_{nor}$	Rated
C	$1.10 V_{norb} < V < 1.20 V_{nor}$	Rated
D	$1.20 V_{nor} \leq V$	Rated
E	Rated	$f > 60.5$
F	Rated	$f < (59.8 - 57.0)$ (Adjustable Set Point)
G	Rated	$f < 57.0$

3. All models meet the surge requirements of IEEE C62.41.2-2002, Location Category B (6kV). Tests were done using ringwave and combination waveforms, both polarities, for common mode and differential mode coupling, 20 pulses each test. After surge testing the unit was operational with control functionally verified by frequency and voltage disconnect tests.

PART D: AC/DC power distribution panel (PDP), Model XW PDP, permanently connected.

Maximum System Voltage (DC)	150 V dc
Maximum Battery System Voltage	62 V dc (48 V nominal)
Maximum System Voltage (AC)	140/280 V ac
Maximum. Operating Current (DC)	150 A (PV)
Maximum Continuous Output Current (AC)	48 A (2-pole Grid) x3circuits
Maximum Continuous Output Current (AC)	48 A (2-pole Gen) x3 circuits



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Maximum Continuous Output Current (AC)	48 A (2-pole Load) x3 circuits
Maximum Continuous Power (AC)	3 x 6000 W
Maximum Continuous Power (DC)	2 x 3400 W
Maximum Over-current Protection (AC)	60 A
Maximum Over-current Protection (DC)	250 A

Notes:

1. Evaluated for use with up to three CSA Certified XW Series Inverter/Chargers with up to two CSA Certified XW-MPPT60-150 Charge Controllers. This accessory is a circuit-breaker sub-panel that provides a balance-of-system. It accommodates both AC and DC circuit breakers for over-current protection and disconnect functionality for the XW6048, XW4548 and XW4024 inverter chargers, XW-MPPT charge controllers, AC generators and the AC load circuits.

PART E: Combined Inverter/Battery Charger, permanently connected. Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW6048-120-60, with Conduit Box supplied, is permanently connected, fixed equipment. This model is physically identical to that in Part A and is configured at time of installation by changing AC transformer terminal connections inside wiring compartment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	57 V dc (Input)	60 V dc (Output)	60 V dc (Input)
	132 V ac (Output)	140 V ac (Input)	120 V ac (Output)
Range of Operating DC Voltage	47 - 58 V dc	40 - 60 V dc	42 - 60 V dc
Max. Operating Current (DC)	160 A	100 A	160 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A
Output Power Factor Rating	>0.98	>0.98	0 - 1.00
Operating Voltage Range (AC)	105.6 - 132 V ac	78 - 140 V ac	120 V ac
Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz



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Nominal Output Voltage (AC)	120 V ac	50.4 V dc	120 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	48 Arms	100 Adc	48 Arms
Maximum Continuous Output Power (AC)	5760 W	5600 W	5760 W
Maximum Output Fault Current and Duration	200 A pk ~8 milliseconds	5150 A pk ~1 milliseconds	180 A pk ~8 milliseconds
Maximum Output Overcurrent Protection	60 A	250 A	60 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N +/-0.05 Hz +/-15% trip time	N/A	N/A
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW6048 (865-1000-1)
Protection & Main processor (Texas Instruments)	V1.07.00, BN9

Notes:

1. Derated operation for elevated ambient temperatures: rated 5760 W continuous from -25°C to 40°C. Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual for derating curves.
2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times (See Part A)



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PART F: Combined Inverter/Battery Charger, permanently connected. Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW4024-120-60, with Conduit Box supplied, is permanently connected, fixed equipment. This model is physically identical to that in Part B and is configured at time of installation by changing AC transformer terminal connections inside wiring compartment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	29 V dc (Input)	32 V dc (Output)	32 V dc (Input)
	132 Vac (Output)	140 Vac (Input)	120 Vac (Output)
Range of Operating DC Voltage	23 - 29 V dc	22 - 32 V dc	22 - 30 V dc
Max. Operating Current (DC)	220 A	150 A	220 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A
Output Power Factor Rating	>0.98	>0.98	0 - 1.00
Operating Voltage Range (AC)	105.6 - 132 V ac	78 - 140 V ac	120 V ac
Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz
Nominal Output Voltage (AC)	120 V ac	25.2 V dc	120 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	36 Arms	150 Adc	48 Arms
Maximum Continuous Output Power (AC)	4000 W	4000 W	4000 W
Maximum Output Fault Current and Duration	89.6Arms @ 17 ms duration	6500A pk ~1 milliseconds	125Arms @ 1.2 s duration
Maximum Output Overcurrent Protection	60 A	250 A	60 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N	N/A	N/A



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	+/-0.05 Hz		
	+/-15% trip time		
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW4024 (865-1010-1)
Protection & Main processor (Texas Instruments)	V1.07.00, BN4

Notes:

1. Derated operation for elevated ambient temperatures: rated 4000 W continuous from -25°C to 40°C. Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual for derating curves.
2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times (See Part A)

PART G: Combined Inverter/Battery Charger, permanently connected. Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW4548-120-60, with Conduit Box supplied, is permanently connected, fixed equipment. This model is physically identical to that in Part C and is configured at time of installation by changing AC transformer terminal connections inside wiring compartment. System ratings as follows:

	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Maximum System Voltage	58 V dc (Input) 132 V ac (Output)	64 V dc (Output) 132 V ac (Input)	64 V dc (Input) 132 V ac (Output)
Range of Operating DC Voltage	46 - 58 V dc	44 - 64 V dc	44 - 64 V dc
Max. Operating Current (DC)	120 A	85 A	120 A
Maximum Input Short Circuit Current (DC)	3000 A	N/A	3000 A
Max. Utility Backfeed Current (AC)	0 A	N/A	N/A
Output Power Factor Rating	>0.98	>0.98	0 - 1.00
Operating Voltage Range (AC)	105.6 - 132 V ac	78 - 140 V ac	120 V ac



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Operating Frequency Range	59.4 - 60.4 Hz	52 - 68 Hz	60 Hz
Nominal Output Voltage (AC)	120 V ac	50.4 V dc	120 V ac
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	40 Arms	85 Adc	48 Arms
Maximum Continuous Output Power (AC)	4500 W	4500 W	4500 W
Maximum Output Fault Current and Duration	122Arms @ 50 ms duration	5150A pk ~1 milliseconds	115Arms @ 1.25 s duration
Maximum Output Overcurrent Protection	60 A	250 A	60 A
Utility Interconnection Voltage and Frequency Trip Limits and Trip Times	See Note 2 below	N/A	N/A
Synchronization In-rush Current	0 A	N/A	N/A
Trip Limit and Trip Time Accuracy	+/-3V L-L +/-1.5V L-N +/-0.05 Hz +/-15% trip time	N/A	N/A
Normal Operation Temperature Range	See Note 1 below.	See Note 1 below.	See Note 1 below.
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW4548 (865-1005-1)
Protection & Main processor (Texas Instruments)	V1.07.00, BN4

Notes:

1. Derated operation for elevated ambient temperatures: rated 4500 W continuous from -25°C to 40°C. Operates at reduced power at temperatures above these ratings to 70°C max; refer to operations manual for derating curves.
2. Utility Interconnection Voltage and Frequency Trip Limits and Trip Times (See Part A).



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APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 107.1-01 - General Use Power Supplies

UL Std No. 1741-Second Edition - Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources (including Revisions through and including January 28, 2010)