

Annex to Certificate of Compliance

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

Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW+ 6848-NA, 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	140 A	180 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)	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)	27 Arms	140 Adc	28 Arms
Maximum Continuous Output Power (AC)	6000 W	6500 W	6800 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	XW+ 6848-NA (factory part no. 865-6848-01)
Protection & Main processor (Texas Instruments)	V2.07 BN0004 Checksum: e3f68f2470a3518c427fd3042bfffec7

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Notes:

1. Derated operation for elevated ambient temperatures: rated 6800 W continuous from -25°C to 25°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 Hz ^a before cessation of current to the simulated utility
	Voltage (V)	Frequency (Hz)	
A	$< 0.50 V_{\text{nor}}^{\text{b}}$	Rated	0.16
B	$0.50 V_{\text{nor}}^{\text{b}} \leq V < 0.88 V_{\text{nor}}$	Rated	2
C	$1.10 V_{\text{nor}}^{\text{b}} < V < 1.20 V_{\text{nor}}$	Rated	1
D	$1.20 V_{\text{nor}} \leq V$	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.

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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) 264 V ac (Output)	32 V dc (Output) 264 V ac (Input)	32 V dc (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
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 Checksum: 002EF689

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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.
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 Hz ^a before cessation of current to the simulated utility
	Voltage (V)	Frequency (Hz)	
A	$< 0.50 V_{\text{nor}}^{\text{b}}$	Rated	0.16
B	$0.50 V_{\text{nor}}^{\text{b}} \leq V < 0.88 V_{\text{nor}}$	Rated	2
C	$1.10 V_{\text{nor}}^{\text{b}} < V < 1.20 V_{\text{nor}}$	Rated	1
D	$1.20 V_{\text{nor}} \leq V$	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.

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PART C: Model XW5548-NA

Stand-alone Inverter/Charger/Utility-Interactive Inverter, Model XW+ 5548-NA, 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	110 A	150 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)	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	110Adc	23 Arms
Maximum Continuous Output Power (AC)	4500 W	5200 W	5500 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	XW+5548-NA (Factory part no. 865-5548-01)
Protection & Main processor (Texas Instruments)	V2.07 BN0004 Checksum: 59ff000f16db62ec157fbf11b0eabfc9

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Notes:

1. Derated operation for elevated ambient temperatures: rated 5500 W continuous from -25°C to 25°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 Hz ^a before cessation of current to the simulated utility
	Voltage (V)	Frequency (Hz)	
A	$< 0.50 V_{nor}^b$	Rated	0.16
B	$0.50 V_{nor}^b \leq V < 0.88 V_{nor}$	Rated	2
C	$1.10 V_{nor}^b < V < 1.20 V_{nor}$	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 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
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

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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 XW6848, XW5548 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 XW6848-NA (120V field-configured), 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) 132 V ac (Output)	60 V dc (Output) 140 V ac (Input)	60 V dc (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	140 A	180 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	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	140 Adc	48 Arms
Maximum Continuous Output Power (AC)	5760 W	5760 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.

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	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Output Power Temperature Derating and Maximum Full Power Operating Ambient	See Note 1 below.	See Note 1 below.	See Note 1 below.

Device	XW+6848-NA (865-6848-01)
Protection & Main processor (Texas Instruments)	V2.07 BN0004 Checksum: d16fa1aa68a02b42764d27e8515e7faa

Notes:

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

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) 132 V ac (Output)	32 V dc (Output) 140 V ac (Input)	32 V dc (Input) 120 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
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

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	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
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 (865-1010-1)
Protection & Main processor (Texas Instruments)	V1.07.00, BN4 Checksum: 3998729B

Notes:

- 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.
- 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 XW5548-NA (120V field-configured), 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	110 A	150 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	50.4 V dc	120 V ac

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	Grid-interactive Mode	Charge Mode	Inverter Stand-alone Mode
Nominal Output Frequency	60 Hz	N/A	60 Hz
Maximum Continuous Output Current (AC or DC)	40 Arms	110 Adc	46 Arms
Maximum Continuous Output Power (AC)	4500 W	5500 W	5500 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	XW5548-NA (Factory part no. 865-5548-01)
Protection & Main processor (Texas Instruments)	V2.07 BN0004 Checksum: 03b3678c98bcc5eb9116553192e67525

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Notes:

1. Derated operation for elevated ambient temperatures: rated 5500 W continuous from -25°C to 25°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 H: AC/DC distribution panel & conduit box, Model: Conext mini-PDP, permanently connected.

Maximum DC System Voltage	150 V dc
Battery System Voltage	48 V nominal
Maximum AC System Voltage	120/240Vac nominal
Maximum DC Continuous Current	260 A dc
Maximum Continuous Output Current (AC)	48 A (2-pole Grid)
Maximum Continuous Output Current (AC)	48 A (2-pole Inverter)
Maximum Continuous Output Current (AC)	48 A (2-pole Bypass)
Maximum Over-current Protection (AC)	60 A
Maximum Over-current Protection (DC)	250 A (for inverter)

Notes:

1. Evaluated for use with one CSA Certified XW Series Inverter/Chargers with up to two CSA Certified XW-MPPT60-150 Charge Controllers. This accessory is a conduit box with circuit-breakers which provides over-current protection for inverter/charge and charge controllers. It accommodates both AC and DC circuit breakers compatible with XW6848, XW5548, XW6048 and XW4548 inverter chargers, for one or two XW-MPPT 60-150 charge controllers, and for AC loads.