


South Australian Department of Energy & Mining/ Home Battery Scheme Equipment Eligibility Criteria

carbonTRACK LTD has partnered with Delta to deliver Battery systems which are virtual power plant (VPP) capable as part of the South Australian Home Battery Scheme.

The Delta/ carbonTRACK 'VPP capable' system:

- includes communications and control functions that extend beyond basic battery system functions,
- can register to a VPP (now or in the future) with minimal or no additional hardware,
- once registered to a VPP, it will be able to respond to remote commands, allowing the battery to be deployed as part of a coordinated fleet of residential storage systems

I, Shavaj Kallamkote, CTO of carbonTRACK LTD certify that the carbonTRACK enabled Delta solution meets the attached Equipment Eligibility Criteria for the South Australian Department of Energy & Mining Home Battery Scheme.



Shavaj Kallamkote- CTO
carbonTRACK LTD

1.0 Electrical interface

Battery systems may be AC- or DC coupled.

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1.1 Physical communications

The battery system shall include an ethernet port

Refer to the attached
CT200i technical Data Sheet

1.2 Internet accessibility

The system shall be provisioned least one means for forming a reliable internet connection accessible by authorised parties (examples include a 4G/5G modem, Wifi connectivity to a homeowner-provided internet-connected LAN, or hardwired ethernet connection to a homeowner-provided internet connected LAN). The means for forming a reliable internet connection need not be the wired ethernet port.

Refer to the attached
CT200i technical Data Sheet

1.3 Remote registration

The system shall support registration of the system via API to remote services (e.g. retailer, OEM, aggregator).

Please refer to carbonTRACK
API documentation link

1.4 Remote monitoring

System shall include a communication function that supports remote monitoring and reporting of system state at 5-minute intervals via an API, with measured/reported parameters to include:

- Battery SOC
- Battery real and reactive power
- Connection point voltage

Refer to the attached
CT200i technical Data Sheet

1.5 Remote control

System shall respond to remotely provided commands from authorised parties to:

- Charge battery
- Discharge battery
- Perform the mandatory Demand
- Response Modes required under AS/NZS 4755.3.5: DRM 0 (open the disconnection device), DRM 1 (do not import energy), DRM 5 (do not export energy).

In addition, for a site on which both the battery and solar systems are new installations ('greenfield'), or for a site using a hybrid inverter, the system shall respond to remotely-provided commands to:

- Dynamically maintain site net power output below or equal to specified export limits that may be required from time to time.

Refer to the attached
CT200i technical Data Sheet

1.6 Remote configuration

System supports remote changes to firmware and operational settings by authorised parties.

Refer to the attached
CT200i technical Data Sheet

1.7 Product performance and safety

Inverters shall comply with AS/NZS 4777.2-2015 and shall be listed on the CEC Approved Inverter List.
Batteries shall comply with the Battery Safety Guide and shall be listed on the CEC Approved Battery List

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1.8 Security

System shall be designed such that it is protected to a suitable standard against electronic intrusion and tampering by unauthorised parties.

Refer to the attached
CT200i technical Data Sheet

1.9 Warranty

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carbonTRACK

Smart Gateway

Energy Management & IoT Gateway



Intelligent energy system

With carbonTRACK, you are in control. Welcome to the world of smart energy, where you can monitor, control and optimize how you use, store and share energy – all via an app or online dashboard.

Know your energy usage

Know how much energy you use and produce in real-time. Avoid bill-shock and use carbonTRACK app's bill prediction and comparisons, set bill goals and alerts to implement changes. Control and automate energy usage and save big.

Make the most of your solar system

Rooftop solar systems are a big investment. carbonTRACK shows your solar production, use, and export, and can notify you a fault does occur. For greater ROI for your solar, schedule appliances and circuits to run when the sun is shining and use excess energy to charge your battery or export to grid.

Be future-ready

With a carbonTRACK Smart Gateway, your energy ecosystem can be adjusted based on energy prices and your home automation needs. Control multiple IoT devices from the carbonTRACK app, schedule and automate devices inline to your energy usage, change your preferences in line with your evolving lifestyle.

BENEFITS

- Monitor how much energy your home or business is consuming.
- Control electrical circuits and individual appliances through scheduling or by switching them on/off through the smartphone app or online dashboard.
- Monitor your solar power generation, usage and export.
- Always know your system status with intuitive real-time alerts.

FEATURES

- App & online dashboard
- Connectivity to SunSpec enabled devices
- Switch & smart control
- Reliable, real-time data
- Solar & battery maximisation
- Control multiple IoT devices
- ZigBee HA 1.2 compliant
- Google Home connectivity
- Safety & system alerts
- MDT data security

SPECIFICATIONS

Model	CT200-CAT-M1	CT200-3G
Performance	LTE CAT-M1 / NB-IoT Power Class 3 +23dBm	HSDPA, UMTS, EDGE, GPRS (Class 12), GSM
Frequency Bands	Full Spectrum Radio	GPRS/EDGE: 1900/1800/900/850MHz WCDMA: 2100/850MHz
Processor & Memory	• 8-bit AVR Micro-controller with 131 instructions • 12 MHz (External Crystal) • 128KB Flash Memory • 16KB Data Memory • 4KB EEPROM	
Radio Frequency ZigBee Power and Standard	2.4GHz Channels 11-26, +10dBm, ZigBee HA 1.2	
Radio Frequency Wi-Fi and Power	802.11 b/g/n with WPA/WPA2, 2.4-2.4835 GHz Channels 1-14, +20 dBm	
Monitoring Accuracy	2% +/- @ PF 1.0 to 0.6	
Input Voltage and Current	100 – 240 V; 200 mA Maximum (Optional; 5 to 24 V DC)	
Battery Type, Capacity and Run Time	Lithium ion, 3.7 V/ 1500 mAh, 5.55 Wh, 24 hours	
Firmware Upgrade Method	Remote Over the Air (OTA) Firmware Upgradable	
Connectors		
Monitoring Current Clamps	x4 (30A to 3000A each)	
Circuit Relay Controls	x3 (30A each)	
Cellular Antenna	Internal Antennal Cell 2dBi, Optional external antenna via Female SMA	
Wi-Fi Antenna	Internal Antenna, Optional external antenna via Female SMA	
SIM Socket	SIM / USIM (2FF)	
Ethernet Port	10/100 MB Ethernet	
RS-485 Port	Supports Half-duplex and Full-duplex	
Physical Description		
Dimensions (W x L x H)	7.98" x 10.53" x 2.36" (202.73 mm x 267.45 mm x 60.00 mm)	
Weight & Chassis Type	1.54 lbs (0.70 kg), Plastic	
Environmental		
Operating Temperature	-20° to +55° C*	
Storage Temperature	-40° to +85° C	
Relative Humidity	20% to 90%, non-condensing	
Warranty		
Warranty Term	12 months	
Certifications		
EMC Compliance	SANS 222 / CISPR 22, SANS / IEC 61000-3-3, SANS / IEC 61000-4-2, SANS / IEC 61000-4-3, SANS / IEC 61000-4-4, SANS / IEC 61000-4-5, SANS / IEC 61000-4-6, SANS / IEC 61000-4-8, SANS / IEC 61000-4-11	
Radio Compliance	ACMA Section 376 of the Telecommunications Act 1997, AS/CA S042.1: 2011, AS/ACIF S042.3: 2005, AS/NZS 60950.1: 2011, ESTI EN 301 908-2 V5.4.1 (2012-12), ESTI EN 301 908-2 V6.2.1 (2013-04)	
Safety Compliance	ANSI/UL 60950-1-2014, CSA/CAN C22.2 No. 60950-1-07, IEC60950-1 / SANS 60950-1, IEC61010-1	
Environmental Compliance	SANS 60529: 2013 Ed 1.2/IEC 60529: 2013 Ed2.2	

* Installation in outdoor locations or ambient temperature above 40° C or 70° C has not been evaluated by UL. UL Certification does not apply or extend to use in outdoor applications. Certification does not apply or extend to voltages outside certified range and has not been evaluated by UL for operating voltages beyond tested range.

GENERAL INFORMATION

Functional Capabilities

Digital Essential Loads	<ul style="list-style-type: none"> Create and manage digital essential loads panel
Green Circuit	<ul style="list-style-type: none"> Supports green circuit feature to maximize solar use
Peak Load Management	<ul style="list-style-type: none"> Manage peak loads for an entire home
Device Control	<ul style="list-style-type: none"> Remote control and monitoring of all appliances in the home
User Configurable Schedules	<ul style="list-style-type: none"> User configurable schedule-based control
Data Transmission Protocol	<ul style="list-style-type: none"> Secure MDT protocol

Electrical Parameters

Electrical Phase Monitoring	<ul style="list-style-type: none"> Single and three phases (3 phase 4 wire)
Power Direction	<ul style="list-style-type: none"> Measures both import and export
Solar Support	<ul style="list-style-type: none"> Yes (shareable among total of 3 current clamps)

Monitoring

Active Power	<ul style="list-style-type: none"> Both Watt and Watt-hour in all phases
Apparent Power	<ul style="list-style-type: none"> Both VA and VAh in all phases
Power Factor	<ul style="list-style-type: none"> Yes (0 to 1 PF) in all phases
Power Direction	<ul style="list-style-type: none"> Measures import, export and net powers (kWh)

Product Compatibility

Electric Hot Water Unit	<ul style="list-style-type: none"> Support up to 2 electrical hot water/geysers Manual control / configurable switch on timers Peak load timer for efficient heating
Solar Thermal Controller	<ul style="list-style-type: none"> Temperature differential based control Circulation Pump switching based on user configurable upper and lower limits
HVAC (Heating, Venting, and Air-Conditioning)	<ul style="list-style-type: none"> Support up to 3 HVAC systems, Temperature based control
Solenoid Valve	<ul style="list-style-type: none"> Shut-off valve control for hot water units
ZigBee capability	<ul style="list-style-type: none"> On-board ZigBee support
Future Expansion (wired)	<ul style="list-style-type: none"> Any device supporting I2C or RS232 communication
Future Expansion (wireless)	<ul style="list-style-type: none"> ZigBee router implementation
Relay Control	<ul style="list-style-type: none"> Enabled through three (3) onboard relays
Relay Port Voltage and Rated Current	<ul style="list-style-type: none"> 12 V DC, 1 A
Relay Output Voltage and Rated Current	<ul style="list-style-type: none"> 240 VAC, 30 A
Wireless Device Control	<ul style="list-style-type: none"> Enabled through ZigBee

External Sensors

Voltage Sensor and Type	<ul style="list-style-type: none"> 100 V to 240 V line-to-neutral, on-board
Current Sensor and Type	<ul style="list-style-type: none"> 60 A standard sensor (60 A to 2000 A options), off-board
Temperature Sensor	<ul style="list-style-type: none"> 2 Analog and up to 8 digital, -55 °C to 125 °C
Water Flow Sensor	<ul style="list-style-type: none"> 1 Litre/min to 60 Litre/min
Leakage Sensor	<ul style="list-style-type: none"> Water leak detector, alert triggered
Earth Fault Alarm	<ul style="list-style-type: none"> Supports electrical earth fault leakage

ORDERING INFORMATION

SKU	Description	Region
CT200M-508	CT200 Smart Gateway (CAT-M1 Modem)	All
CT200i-505	CT200 Smart Gateway (3G Modem)	All

RECOMMENDED ACCESSORIES

SKU	Description	Region
CT20E2-010	Outdoor Weatherproof Enclosure	All
AN10D1-010	10dBi External Antenna	All
AN01M1-014	1m Antenna Extension Cable	All
AN05M1-016	5m Antenna Extension Cable	All
AN10M1-202	10m Antenna Extension Cable	All
CCJ011-100	Insulated Cable Clamp 60 Amp	All
CCJ121-101	Insulated Cable Clamp 120 Amp	All
CCJ201-102	Insulated Cable Clamp 200 Amp	All
TSA2M1-205	Temperature Sensor - Analogue - 20M - MTC10K	All
TSD201-215	Temperature Probe - Digital - 20M	All
CB20A1-042	Single Pole MCB 20 Amp/Bypass Switch - Internal	All
CB25A1-043	Single Pole MCB 25 Amp	All
CTSMPL-750	Smart Plug	All

SERVICE & WARRANTY

carbonTRACK's comprehensive Support Service programs offer a full array of options to suit your specific needs. These services are aimed at protecting your investment and reducing the total cost of ownership.

TECHNICAL SUPPORT SERVICES

At carbonTRACK, we are committed to providing you with a quality service with a high attention to detail. Several options of support are available to choose from.

For additional information on Support Services as well as other service offerings, please contact your carbonTRACK representative or visit www.carbonTRACK.com.au

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Go to www.carbonTRACK.com.au for detailed product model numbers.

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