



MEGAPACK 2 XL OPTION CODES QUICK REFERENCE GUIDE

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1 Overview

Megapack 2 XL (Megapack) is designed to be flexible and configurable to meet the needs of site-specific requirements across an array of applications. This document is a customer-facing guide to finding and interpreting how Tesla specifies and documents various product configurations through an option code system, beyond a Megapack's base part and serial number.

1.1 About Option Codes

Megapack is referenced by a single manufacturer part number (1848844-XX-Y), regardless of its configuration, where X is a number between 0-9 and Y is a letter. These values may change over time but do not correspond to product ratings.

Specific ratings and variant configurations are indicated by option codes. Option codes appear in a list of alphanumerical digits separate from the part number. These codes are determined at the time of product configuration during the sales process and are then referenced throughout the order-to-delivery process. They are printed on the product labels for easy identification during the product's operational lifetime.

1.2 Option Codes Location

Option codes are located on two labels on the Megapack:

1. On the **Megapack nameplate label** inside of the product (Figure 1).
This is a large sticker located on the inside of the Customer Interface Bay door. It contains:
 - Description of the product, with kWh, kW, and kVA ratings
 - Part number followed by complete list of option codes
 - Serial number
 - Date of manufacture
 - Detailed product specifics and compliance marks
2. On the **Megapack external label**, a smaller laser-etched metal label on the outside of the product (Figure 2).
This label, located on the outside of the Customer Interface Bay door above the handle, contains:
 - Description of the product
 - Part number followed by option codes for battery and inverter ratings only
 - Serial number
 - Date of manufacture



1.3 Sample Labels with Option Codes

Examples of both labels with option codes locations highlighted are below.

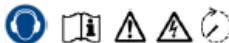
TESLA MEGAPACK BATTERY ENERGY STORAGE SYSTEM GRID SUPPORT UTILITY INTERACTIVE INVERTER	
	MEGAPACK, BESS, 3916.8 kW·h, 979.2 kW, 1563.7 A (P) 1848844-00-A EC24,GT01,P151,TC4H,QB01 BB01,CMA1,SE00,CRNA,VF00 (S) TG1200690EX420 Date of Manufacture: 2022:06
	
Protective Class	Class I
Enclosure Type	Type 3R/IP66
Ingress Protection (Enclosure/Thermal Roof)	IP66 / IP2x
Operating Temperature Range	-30°C to +50°C
Inverter Topology	Non-Isolated
Nominal Battery Energy (AC) at 979.2 kW	3916.8 kW·h
Battery Type	Li-Ion
Mass	36346 kg
AC Input/Output	
Nominal Voltage (3-Phase)	480 VAC
Maximum Continuous Power	1512 kVA
Voltage Range	422.4-552 V
Maximum Continuous Current	1818.7 A
Frequency	45-66 Hz
Power Factor Range	-1 to 1
Maximum Output Fault Current	2182.4 A
Maximum Utility Backfeed Current	4200 A
Maximum Supply Fault Current	85 kA AC
Refrigerant	R-134a 1.5 kg
Refrigerant Oil	POE 0.22 L
Coolant Volume	EGW 360 L
Certified to:	CAN/CSA STD C22.2 No.107.1
Conforms to:	ANSI/CAN/UL 1973, ANSI/CAN/UL 9540 UL STD. 1741
CAUTION: RISK OF ELECTRIC SHOCK. WARNING: POWER FED FROM MORE THAN ONE SOURCE. DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING. ENERGY STORED IN CAPACITOR. DO NOT REMOVE COVER UNTIL 5 MINUTES AFTER DISCONNECTING THE EQUIPMENT. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	
ATTENTION: RISQUE DE CHOC ÉLECTRIQUE. AVERTISSEMENT: L'ALIMENTATION PROVIENT DE PLUS D'UNE SOURCE COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT UN SERVICE ÉNERGIE STOCKÉE DANS DES CONDENSATEURS. ATTENDRE 5 MINUTES AVANT DE RETIRER LE COUVERCLE APRÈS AVOIR COUPÉ TOUTES LES SOURCES D'ALIMENTATION. CONFIER L'ENTRETIEN À DU PERSONNEL QUALIFIÉ.	
 5 Minutes	
 MADE ON EARTH BY HUMANS	Tesla, Inc. 700 D'Arcy Pkwy Lathrop, CA 95330, USA Tel: 1(877)798-3752 www.tesla.com

Figure 1: Option Codes on Megapack Nameplate Label (Example)

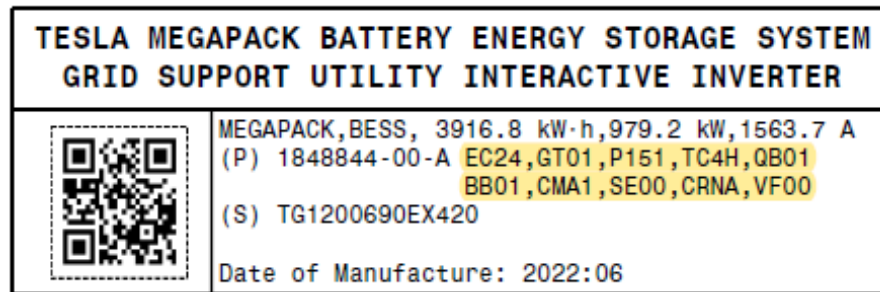


Figure 2: Option Codes on Megapack External Label (Example)

1.4 Option Code Format and Values

Megapack option codes are printed in a list of text and numerical segments generically appearing as below:

EC##, GT##, P###, TC##, QB##, BB##, CMA#, SE##, CR##, VF##

Each option code represents a product **option** and its available **variants**, whereby ## or ### stands for numbers that indicate available variants as described below. More option codes may be added in the future.

Table 1: Option Code Values

Option	Variant	Description
EC##	08 - 24	Number of battery modules. When combined with GT##, the energy capacity (kWh) can be calculated. When combined with GT## and P###, the real power capability (kW) can be calculated.
GT##	01 02	Power electronics inverter configuration, where GT01 represents the 4-Hour configuration and GT02 the 2-Hour configuration. When combined with EC##, the energy capacity (kWh) can be calculated.
P###	040 - 240	Megapack apparent power configuration code. Allows for calculation of apparent power capability (kVA) and maximum continuous charge/discharge current (A).
TC##	02 04	Thermal configuration, which is based on heat rejection requirements of the power electronics and battery module count.
QB##	01 02	Internal product bussing configuration, which is based on the power electronics inverter and Megapack apparent power configurations.
BB##	01 02	Megapack AC circuit breaker variant, which is based on the power electronics inverter and Megapack apparent power configuration.
CMA#	0 1	Battery augmentation configuration, indicating that hardware may be pre-installed for future battery augmentation.
SE##	00 01	Shipping firmware configuration, which is based on delivery location of the Megapack
CR##	NA CN RW	Cellular configuration, which is based on delivery location of the Megapack.
VF##	00 01	Grid-forming firmware configuration, which is based on site application requirements.



1.5 Energy Capacity

A Megapack's energy capacity is determined using **EC##** and **GT##**, referring to the table below.

Table 2: Energy Capacity

EC## Variant	With GT01 (kWh)	With GT02 (kWh)
08	1305.6	1284.8
09	1468.8	1445.4
10	1632.0	1606.0
11	1795.2	1766.6
12	1958.4	1927.2
13	2121.6	2087.8
14	2284.8	2248.4
15	2448.0	2409.0
16	2611.2	2569.6
17	2774.4	2730.2
18	2937.6	2890.8
19	3100.8	3051.4
20	3264.0	3212.0
21	3427.2	3372.6
22	3590.4	3533.2
23	3753.6	3693.8
24	3916.8	3854.4



1.6 Apparent Power Capability

A Megapack's apparent power and continuous current is determined using **P###**, referring to the table below.

Table 3: Apparent Power Capability and Continuous Current

Power Configuration	Apparent Power (kVA)	Maximum Continuous Charge/Discharge Current (A)	
P040	400.0	481.1	
P045	450.0	541.3	
P050	500.0	601.4	
P055	550.0	661.5	
P060	600.0	721.7	
P065	650.0	781.8	
P070	700.0	842.0	
P075	750.0	902.1	
P080	800.0	962.3	
P085	850.0	1022.4	
P090	900.0	1082.5	
P095	950.0	1142.7	
P100	1000.0	1202.8	
P105	1050.0	1263.0	
P110	1100.0	1323.1	
P115	1150.0	1383.2	
P120	1200.0	1443.4	
P125	1250.0	1503.5	
P130	1300.0	1563.7	
P132	1320.0	1587.7	Standard 4-Hour
P135	1350.0	1623.8	
P140	1400.0	1683.9	
P145	1450.0	1744.1	
P150	1500.0	1804.2	
P151	1512.0	1818.7	
P155	1550.0	1864.4	
P160	1600.0	1924.5	
P165	1650.0	1984.6	
P170	1700.0	2044.8	
P175	1750.0	2104.9	
P180	1800.0	2165.1	
P185	1850.0	2225.2	



Power Configuration	Apparent Power (kVA)	Maximum Continuous Charge/Discharge Current (A)	
P190	1900.0	2285.3	
P195	1950.0	2345.5	
P200	2000.0	2405.6	
P205	2050.0	2465.8	
P210	2100.0	2525.9	
P215	2150.0	2586.0	
P220	2200.0	2646.2	
P225	2250.0	2706.3	
P230	2300.0	2766.5	
P235	2350.0	2826.6	
P240	2400.0	2886.8	Standard 2-Hour

1.7 Real Power Capability and Allowable Megapack Apparent Power Configuration Codes

The table below describes the real power capability and allowable Megapack power configuration codes by GT## and EC## configuration.

The real power capability, for a given EC##, GT##, and P### configuration, is the **minimum** of the real power capability from Table 4 below and the apparent power capability from Table 3.

Table 4: Real Power Capability and Allowable Megapack Apparent Power Configuration Codes

Product Configuration	Battery Module Option Code	Real Power Capability (kW)	Apparent Power (kVA) Capability	Maximum Continuous Output Current (A)	Allowable Apparent Power Option Codes
4-Hour (GT01)	EC08	326.4	440	529.2	- P040
	EC09	367.2	495	595.4	- P040 - P045
	EC10	408.0	550	661.5	- P045 - P050 - P055
	EC11	448.8	605	727.7	- P045 - P050 - P055 - P060
	EC12	489.6	660	793.9	- P050 - P055 - P060 - P065
	EC13	530.4	715	860.0	- P055 - P060 - P065 - P070
	EC14	571.2	770	926.2	- P060 - P065 - P070 - P075 - P075
	EC15	612.0	825	992.3	- P065 - P070 - P075 - P075 - P080
	EC16	652.8	880	1058.5	- P070 - P075 - P075 - P080 - P085



Product Configuration	Battery Module Option Code	Real Power Capability (kW)	Apparent Power (kVA) Capability	Maximum Continuous Output Current (A)	Allowable Apparent Power Option Codes
	EC17	693.6	935	1124.6	- P070 - P075 - P075 - P080 - P085 - P090
	EC18	734.4	990	1190.8	- P075 - P075 - P080 - P085 - P090 - P095
	EC19	775.2	1045	1256.9	- P080 - P085 - P090 - P095 - P100
	EC20	816.0	1100	1323.1	- P085 - P090 - P095 - P100 - P105 - P110
	EC21	856.8	1155	1389.2	- P090 - P095 - P100 - P105 - P110 - P115
	EC22	897.6	1210	1455.4	- P090 - P095 - P100 - P105 - P110 - P115 - P120
	EC23	938.4	1265	1521.6	- P095 - P100 - P105 - P110 - P115 - P120 - P125
	EC24	979.2	1320	1587.7	- P100 - P105 - P110 - P115 - P120 - P125 - P130 - P132
2-Hour (GT02)	EC08	642.4	880	1058.5	- P065 - P070 - P075 - P075 - P080 - P085
	EC09	722.7	990	1190.8	- P075 - P075 - P080 - P085 - P090 - P095
	EC10	803	1100	1323.1	- P085 - P090 - P095 - P100 - P105 - P110
	EC11	883.3	1210	1455.4	- P090 - P095 - P100 - P105 - P110 - P115 - P120
	EC12	963.6	1320	1587.7	- P100 - P105 - P110 - P115 - P120 - P125 - P130 - P132
	EC13	1043.9	1430	1720.0	- P105 - P110 - P115 - P120 - P125 - P130 - P132 - P135 - P140
	EC14	1124.2	1540	1852.3	- P115 - P120 - P125 - P130 - P132 - P135 - P140 - P145 - P150 - P151
	EC15	1204.5	1650	1984.6	- P125 - P130 - P132 - P135 - P140 - P145 - P150 - P151 - P155 - P160 - P165
	EC16	1284.8	1760	2117.0	- P130 - P132 - P135 - P140 - P145 - P150 - P151 - P155 - P160 - P165 - P170 - P175
	EC17	1365.1	1870	2249.3	- P140 - P145 - P150 - P151 - P155 - P160 - P165 - P170 - P175 - P180 - P185
	EC18	1445.4	1980	2381.6	- P145 - P150 - P151 - P155 - P160 - P165 - P170 - P175 - P180 - P185 - P190 - P195
	EC19	1525.7	2090	2513.9	- P155 - P160 - P165 - P170 - P175 - P180 - P185 - P190 - P195 - P200 - P205



Product Configuration	Battery Module Option Code	Real Power Capability (kW)	Apparent Power (kVA) Capability	Maximum Continuous Output Current (A)	Allowable Apparent Power Option Codes
	EC20	1606	2200	2646.2	- P165 - P170 - P175 - P180 - P185 - P190 - P195 - P200 - P205 - P210 - P215 - P220
	EC21	1686.3	2310	2778.5	- P170 - P175 - P180 - P185 - P190 - P195 - P200 - P205 - P210 - P215 - P220 - P225 - P230
	EC22	1766.6	2400	2886.8	- P180 - P185 - P190 - P195 - P200 - P205 - P210 - P215 - P220 - P225 - P230 - P235 - P240
	EC23	1846.9	2400	2886.8	- P185 - P190 - P195 - P200 - P205 - P210 - P215 - P220 - P225 - P230 - P235 - P240
	EC24	1927.2	2400	2886.8	- P195 - P200 - P205 - P210 - P215 - P220 - P225 - P230 - P235 - P240

1.8 Peak Real Power Capability and Allowable Megapack Peak Apparent Power Configuration Codes

The table below describes the real power capability and allowable Megapack peak power configuration codes by GT## and EC## configuration. For additional information about peak power, refer to *Peak Power* in the *Megapack 2 XL Specification*.

For a given EC##, GT##, and P### configuration, the peak real power capability is the **minimum** of the real power capability from Table 5 below and the apparent power capability from Table 3.

Table 5: Real Peak Power Capability and Allowable Megapack Peak Apparent Power Configuration Codes

Product Configuration	Battery Module Option Code	Peak Real Power (kW)	Peak Apparent Power (kVA)	Max Peak Continuous Current (A)	Allowable Peak Apparent Power Option Codes
4-Hour (GT01)	EC08	432.0	504.0	606.2	- P045 - P050
	EC09	486.0	567.0	682.0	- P050 - P055
	EC10	540.0	630.0	757.8	- P060
	EC11	594.0	693.0	833.5	- P065
	EC12	648.0	756.0	909.3	- P070 - P075 - P075
	EC13	702.0	819.0	985.1	- P075 - P075 - P080
	EC14	756.0	882.0	1060.9	- P080 - P085
	EC15	810.0	945.0	1136.7	- P085 - P090



Product Configuration	Battery Module Option Code	Peak Real Power (kW)	Peak Apparent Power (kVA)	Max Peak Continuous Current (A)	Allowable Peak Apparent Power Option Codes
	EC16	864.0	1008.0	1212.4	- P090 - P095 - P100
	EC17	918.0	1071.0	1288.2	- P095 - P100 - P105
	EC18	972.0	1134.0	1364.0	- P100 - P105 - P110
	EC19	1026.0	1197.0	1439.8	- P105 - P110 - P115
	EC20	1080.0	1260.0	1515.5	- P115 - P120 - P125
	EC21	1134.0	1323.0	1591.3	- P120 - P125 - P130 - P132
	EC22	1188.0	1386.0	1667.1	- P125 - P130 - P132 - P135
	EC23	1242.0	1449.0	1742.9	- P130 - P132 - P135 - P140
	EC24	1296.0	1512.0	1818.7	- P135 - P140 - P145 - P150 - P151
2-Hour (GT02)	EC08	864.0	1008.0	1212.4	- P090 - P095 - P100
	EC09	972.0	1134.0	1364.0	- P100 - P105 - P110
	EC10	1080.0	1260.0	1515.5	- P115 - P120 - P125
	EC11	1188.0	1386.0	1667.1	- P125 - P130 - P132 - P135
	EC12	1296.0	1512.0	1818.7	- P135 - P140 - P145 - P150 - P151
	EC13	1404.0	1638.0	1970.2	- P145 - P150 - P151 - P155 - P160
	EC14	1512.0	1764.0	2121.8	- P155 - P160 - P165 - P170 - P175
	EC15	1620.0	1890.0	2273.3	- P170 - P175 - P180 - P185
	EC16	1728.0	2016.0	2424.9	- P180 - P185 - P190 - P195 - P200
	EC17	1836.0	2142.0	2576.4	- P190 - P195 - P200 - P205 - P210
	EC18	1944.0	2268.0	2728.0	- P200 - P205 - P210 - P215 - P220 - P225
	EC19	2052.0	2394.0	2879.5	- P210 - P215 - P220 - P225 - P230 - P235
	EC20	2160.0	2400.0	2886.8	- P225 - P230 - P235 - P240
	EC21	2268.0	2400.0	2886.8	- P235 - P240
	EC22	2376.0	2400.0	2886.8	- P240
	EC23	2400.0	2400.0	2886.8	- P240
	EC24	2400.0	2400.0	2886.8	- P240



1.9 Circuit Breaker Variant

The Megapack AC circuit breaker variant is designated by the BB## option code.

The circuit breaker is a Siemens model with an electronic trip unit (ETU) that has configurable settings for LSIG trip functionality – long-time overcurrent protection (L), short-time delayed overcurrent protection (S), instantaneous overcurrent protection (I), and ground-fault protection (G).

Table 6: Manufacturer Information by Option Code

Option Code Variant	Model	ETU	Part Number
BB02	UL 489 Siemens WL	745 (mechanical dial)	L2F330WGJAXEACN
	UL 1066 Siemens WA	600 (LCD display)	3232-5AF02-2KA5-Z_D80+F40+P61
BB01	UL 489 Siemens WL	745 (mechanical dial)	L2F316TGJAXEACN
	UL 1066 Siemens WA	600 (LCD display)	3216-5AF02-2KA5-Z_D80+F40+P61



2 Determining Power, Energy, and Configuration

In this example, we use the following list of option codes to determine an example Megapack's power capability, energy capacity, and configuration:

EC24, GT01, P130, TC4H, BB01, QB01, CMA0, SE01, RENA, VF00

Referring to **Table 1: Option Code Values**, this Megapack's relevant option codes for this exercise are:

- **EC24** - Battery modules = 24
- **GT01** - Power electronics inverter configuration = 4-Hour
- **P130** - Megapack power configuration = 130

2.1 Determining Power

2.1.1 Apparent Power Capability

A Megapack's power configuration (P###) option code indicates the apparent power capability (kVA) and maximum charge/discharge current (A). In our example Megapack, the relevant option code is P130. Using this value, refer to **Table 3: Apparent Power Capability and Continuous Current** to determine the following ratings:

- Apparent power capability = **1300 kVA**
- Maximum continuous charge/discharge current = **1563.7 A**

2.1.2 Real Power Capability

Megapack's real power capability may be limited by either the available power from the batteries or the inverter capability.

A Megapack's EC## and GT## option codes indicate the number of battery modules and the inverter configuration, respectively. In our example Megapack, the related option codes are **EC24** and **GT01**. Using these values, and **P130**, refer to **Table 3** and **Table 4** to determine the following capability:

- Real power capability = $\min(979.2, 1300) =$ **979.2 kW**

2.2 Determining Whether Peak Power is Enabled

A combination of **EC#**, **GT#**, and **P###** option codes indicate whether Peak Power is enabled:

1. Using **Table 5: Real Peak Power Capability and Allowable Megapack Peak Apparent Power Configuration** Codes, find the row that matches your **EC#** and **GT#** option codes.
2. Check that row's **Allowable Peak Apparent Power Option Code** column. If your **P###** option code appears, Peak Power is enabled. If not, Peak Power is not enabled.
3. Contact Tesla to determine your power ratings, or for more information.



2.3 Determining Energy

The combination of inverter configuration (GT##) and number of battery modules (EC##) option codes indicates energy capacity. In our example Megapack, the related option codes are **GT01** and **EC24**.

Using these values, refer to **Table 2: Energy Capacity** to determine the following rating:

- Energy capacity = **3916.8 kWh**

2.4 Determining Megapack Configuration

Megapack's configuration is a function of real power and energy, which can be determined using the EC##, GT##, and P### option codes.

Configuration is calculated by dividing energy by real power, as below:

- Megapack configuration = $\frac{\text{Energy capacity as determined in Section 2.3}}{\text{Real power capability as determined in Section 2.1.2}}$
- Megapack configuration = 3916.8 kWh / 979.2 kW = **4-Hour**

2.4.1 Non-Standard Configuration Example

Megapack is capable of configurations other than the standard 2-Hour and 4-Hour configurations. To enable longer configurations, the P### option code is configured such that the power configuration is lower than the available real power from the batteries.

Referring to **Table 1: Option Code Values**, this Megapack's relevant option codes for this exercise are:

- **EC24** - Battery modules = 24
- **GT01** - Power electronics inverter configuration = 4-Hour
- **P###** - Megapack power configuration = Variable based on configuration

Changing the Megapack power configuration option code in our example from **P130** to **P040**, Megapack has a new real power capability ($\min(979.2, 400) = 400 \text{ kW}$).

The (now, non-standard) configuration, calculated by dividing energy by real power, is below:

- Megapack configuration = $\frac{\text{Energy capacity as determined in Section 2.3}}{\text{Real power capability as determined in Section 2.1.2}}$
- Megapack configuration = 3916.8 kWh / 400 kW = **9.8-Hour**



Revision History

Revision	Date	Description
1.4	January 30, 2024	• Provided UL 1066 circuit breaker information
1.3	June 14, 2023	• Corrected label names • Integrated improved ratings terminology from Specification
1.2	March 29, 2023	• Added breaker part number information • Added ratings information for Peak Power Mode
1.1	December 16, 2022	• Added duration calculations
1.0	September 2, 2022	• Initial revision