

24S12.215BCH-A 3,000 Watt

24/12V Bi-Directional DC/DC Converter



Product Overview

The 3,000-Watt 24S12.215BCH-A bi-directional, non-isolated DC/DC converter provides a complete solution for in-vehicle power distribution with 12V/24V battery configurations for a variety of applications including micro and mild hybrid E-Mobility systems.

The bi-directional DC/DC converter charges a low-side (12V) battery during normal operation (buck mode) and charges or assists the high voltage (24V) battery in emergency situations (boost mode). The bi-directional DC/DC converter operates more as an ideal current source with variable direction, thus allowing energy transfer between two voltage domains.

Voltage feedback maintains the output voltage within the acceptable operating range and eventually allows a custom charging profile for the battery pack. The converter regulates the average current flowing between the high voltage and low voltage ports in the direction selected via CAN interface. It is packaged in IP6K9K rated housing. Three M8 bushings are provided for power connection, an 8-pin connector for ENABLE, and baud rate selection signals and CAN communication.

Features

- E-Mobility 12V/24V Battery System
- Buck and boost modes of operation
- Low Side Voltage Range (LS): 9V-16V (Code C)
- High Side Voltage Range (HS):16V-32V (Code F)
- Overcurrent, Overvoltage, & Over-Temperature Protection. All protections are latching.
- Disconnect switch LS (12V) and HS (24V)
- Constant Voltage and Constant Current Mode
- Low-Side and High-Side Current Programming and Monitoring
- Internal temperature monitoring
- High power density
- Efficiency up to 96.5%
- Dimensions 10.4" x 9.9" x 2.05"
- Weight 7.58 lb. (3.44 kg)
- Constant switching frequency
- CAN 2.0b Interface including ENABLE
- Good shock and vibration damping
- RoHS Compliant

Operational Characteristics

Parameter	Min.	Typ.	Max.	Units
Operating Temperature	-40	-	85	°C
Storage Temperature	-55	-	125	

High Side

Parameter	Min.	Typ.	Max.	Units
Operating Voltage Range	10	28	32	V
Turn-on Threshold	16	16	25	
Turn-off Threshold	15	15	24	
Input Current Range	1	-	107	A
Over-Voltage Protection	28	35	35	V

Low Side

Parameter	Min.	Typ.	Max.	Units
Operating Voltage Range	9	12	16	V
Turn-on Threshold	8	8	13	
Turn-off Threshold	7	7	12	
Input Current Range	1	-	21.5	A
Over-Voltage Protection	14	17.5	17.5	V
Efficiency	96.3	97.0	97.7	%

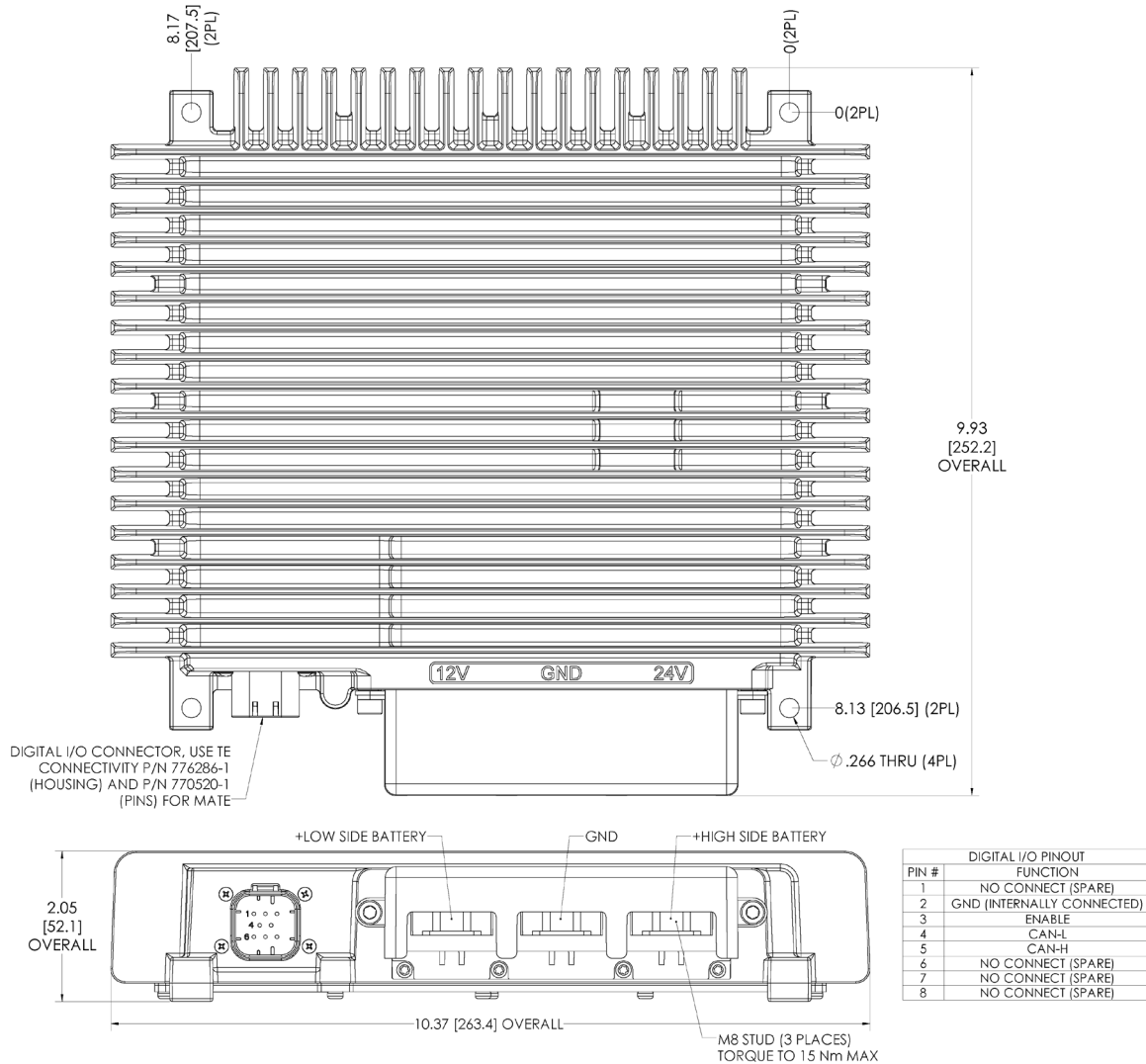
Ordering Guide

Model	Input Voltage	Output Voltage	Output Current	Baud Rate
24S12.215BCH-A	12-24V	9-16V	215A	500
24S12.215BCH-F02	12-24V	9-16V	215A	250

Mechanical Specifications

Parameter	Description	Unit
Dimensions	10.37 x 9.93 x 2.05	inches
	263.4 x 252.2 x 52.1	mm
Weight	3.44	kg
	7.58	lbs.
Enclosure	A380 aluminum	

MECHANICAL SPECIFICATIONS



© Calex Manufacturing Company, Inc. • +1 (925) 687-4411 • (800) 542-3355 • e-mail: sales@calex.com

Calex Manufacturing, Inc. ("Calex") makes no representation that the use of its products in the circuits described herein, or the use of other technical information contained herein, will not infringe upon existing or future patent rights. The descriptions contained herein do not imply the granting of licenses to make, use, or sell equipment constructed in accordance therewith. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm, and take appropriate remedial actions. Buyer will fully indemnify Calex, its affiliated companies, and its representatives against any damages arising out of the use of any Calex products in safety-critical applications. Specifications are subject to change without notice.