

allocortech inc.

Taurus C60 ICD

601-0052-000

Revision A

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440 N Commerce Ave
Waynesboro, VA 22980



<https://allocor.tech>



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Version History

Revision	Changes
A	Initial Release



Introduction

The allocortech inc Taurus C60 is a BLDC motor controller that implements full FOC/SVPWM for high efficiency operation up to 6kW peak power. The Taurus C60 has isolated communications channels configurable for CAN 2.0, RS-485, and a digital input. It comes in an IP67 rated package with integrated heat-sink. It supports up to 14S (60V) operation and 100A peak operating current (70A continuous).

Scope of this Document

This document covers the mechanical and electrical specifications of the allocortech inc. Taurus C60 (part number 100-0054 and variants). The software development interfaces will be covered in other documents.

List of Abbreviations

RS485	Differential, half-duplex serial bus
BLDC	Brushless DC (motor)
CAN	Controller Area Network, serial protocol ISO 11898
EMI	Electromagnetic Interference
GND	Power or Digital Ground, isolated from Chassis Ground
GPI	General Purpose Input
PWM	Pulse Width Modulation

References


CAN 2.0 Specification



Electrical Interface

Connector Pinout

J1 - Communications Connector

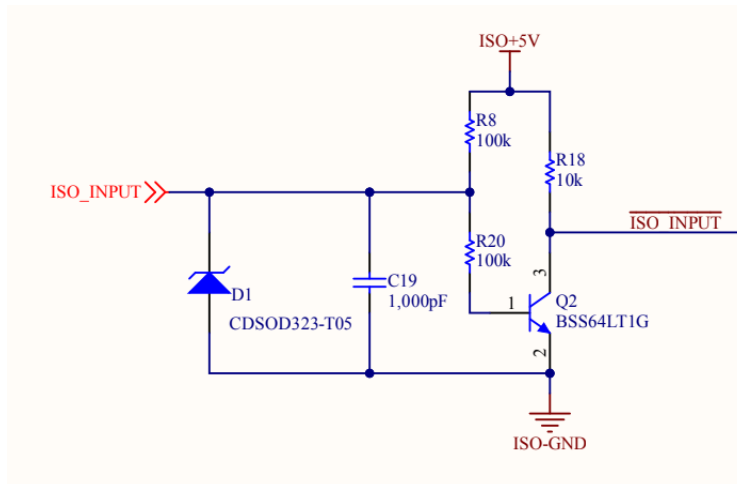
	Plug connector part number: D38999/24ZA35PN
	Recommended mate: D38999/26ZA35SN
Available harnesses:	
<ul style="list-style-type: none">• 130-0082-900 - D38999 to Molex• 130-0082-901 - DB9 CAN Adapter	

J1 Pin Allocation Table

Pin	Signal	Function
1	RS-485-	RS-485 Pair
5	RS-485+	
2	CAN_L	CAN Pair
3	CAN_H	
4	Digital Input	Isolated general-purpose input
6	ISO-GND	Isolated ground reference for CAN, RS-485, and GP Input

General Purpose Input

The General Purpose Input is normally high when left unconnected, allowing for an external open-collector or single switch to ground to drive it. It allows operation 0-5V referenced to ISO-GND. It is ESD-protected with a unidirectional CDSOD323-T05 diode.





Absolute Maximums

Parameter	Min	Max	Units
Input Voltage on VIN to GND	-0.5 *	60	V
VIN Current	70 (continuous) 100 (peak)		A
System/Idle Power	1.0	1.5	W
Motor Power	0	4 (continuous)* 6 (peak)	kW
GPIO Voltage to ISO-GND @ 1mA	-0.3	+6.0	V
CAN Common Mode to ISO-GND	-2	+7	V
RS-485 Common Mode to ISO-GND	-25	+25	V
RS-485 Transient Fault Protection to ISO-GND	-65	+65	V
GND to ISO-GND	-400	+400	V

* Assumes motor controller placed in appropriate airflow for heat exchange.

Communications Parameters

Parameter	Min	Nom	Max	Units
CAN Differential Output Voltage (dominant)	1.5		3.0	V
CAN Differential Output Voltage (recessive)	-0.12		0.012	V
RS-485 Differential Output	1.5 @ 54Ω			V
RS-485 Common Mode Output Voltage		2.5	3	V
RS-485 Input Rising Threshold	40		200	mV
RS-485 Input Falling Threshold	-200		-40	mV

For more detailed information, see the datasheets for the following transceivers:

CAN 2.0	SN65HVD255D
RS-485	MAX14775



Environmental Ratings

Temperature

Operating: -40°C to 85°C *

Storage: -40° to 105°C

* Ambient airflow across the heatsink may need to be cooler depending upon the desired max power.

On-board temperature sensors are included at the following locations. The specific limits are as follows, which software should adhere to. These thresholds assume adequate air flow across the Taurus C60 heatsink.

Device	Recommended Limit
Inverter MOSFETs	125°C
Internal Processor	125°C
Bulk Capacitor Case	110°C

Ingress Protection

The Taurus C60 is designed to IP67, but not yet qualified. This rating also assumes the system integrator seals around the ends of the five 10AWG flying wire leads.

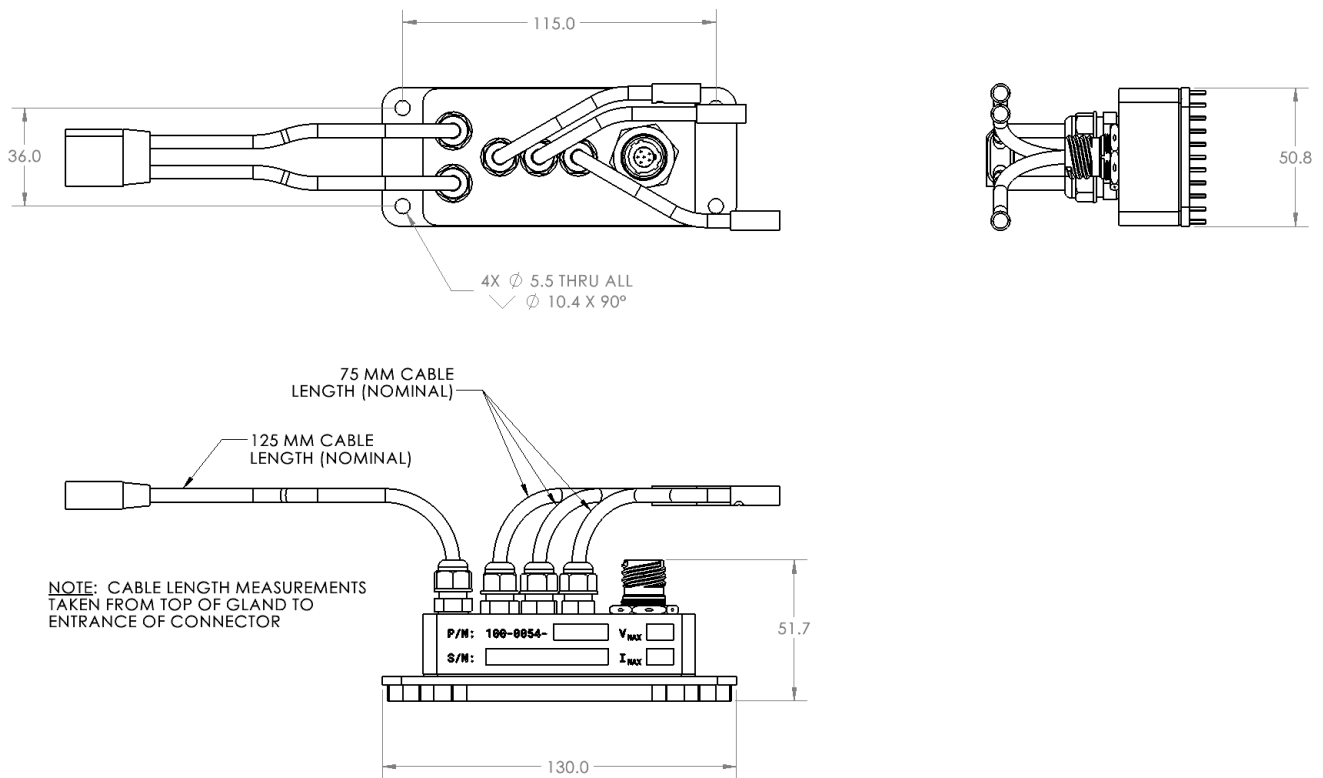


Mechanical Interface

The Taurus C60 is housed in a machined, hard-anodized Al 6061 enclosure. An array of fins on the lid provide cooling for the unit. Three 5.5mm female bullet connectors on 115 mm cables and one XT90H-M connector on 165 mm cables exit the enclosure through sealed cable glands along with a D38999 / 24ZA35PN connector. *Cable length and connector variations are available on request.*

Dimensions

Measurements given in millimeters.



Weight

With nominal cable length and cooling fins, unit weight is 280 g.

