

# SCOTT DRIVE 100



## Features

- + 100 kW Output Power (150kW Peak)
- + Integrated Pre-charge Circuit
- + Integrated LEV200 Contactor
- + External Coolant / Motor Temperature Monitoring
- + Four 12V (10A) DC Motor Outputs
- + Supports Encoder (QEP) or Hall Effect Sensor feedback from Motor
- + Nine Digital Switch Inputs
- + Regenerative Braking
- + Liquid Cooling
- + Integrated TCP/IP Ethernet, RS485 and CAN communications ports
- + Drive setup can be configured via Ethernet port
- + Firmware upgradeable via Ethernet port

General Specifications	Value	Units
Nominal DC Bus Voltage	200-425	Volts
Maximum DC Bus Voltage	450	Volts
Rated Current	400	Amps
Maximum Current	450	Amps
Switching Frequency	10.0-15.0	kHz
Minimum Coolant Flow Rate	3.0	L/min
Drive Supply Voltage	11-16	Volts
Minimum Drive Supply Current	2	Amps
Maximum Drive Supply Current	40	Amps
Weight	14.0	kg
Dimensions	384 × 304 × 108	mm

## 12V Supply Connection

The 12V supply to the Drive is via a 50A Anderson connector. The nominal current required for operation is 2 Amps to power the Digital and Analogue circuits and also the LEV200 contactor. If any of the 4 Auxiliary channels are used then the 12V supply current will be higher.

## High Power Connections

The DC Power is provided to the Drive controller via flying leads which can be terminated with crimp lugs or an Anderson connector. The length of the cable can be specified. Please see ordering options for more information.

The AC Power connections to the motor are provided via 10mm studs. It is highly recommended to use 35mm cable and to keep the motor leads as short as possible to avoid EMI problems.

## Communication Interfaces

### Ethernet TCP/IP

A standard RJ45 Ethernet connection is provided for easy connection to any PC. The Ethernet port is AUTO-MDIX enabled meaning it can be connected directly to either a PC or network switch without using a cross-over cable. PC based application software is provided which can be used for initial setup, in-field firmware upgrade or to simply view operating parameters of the Drive.

### CAN Bus

The CAN Bus port is provided primarily so the Drive controller can communicate with other Scott EV products such as the Battery Management System (BMS) and charging system.

### RS485

The RS45 port is included for future expandability and custom interfaces if requested. Please contact your local distributor if you wish to customize setup, control or diagnostic functions via RS485.

## Driver Control Inputs

An EPIC HD15 connector is provided for all Analog and Digital control inputs. This ensures protection from both dirt and EMI. For maximum protection it is recommended to use shielded cabling between the Drive and all sensors (switches and pots). Depending on your hardware configuration not all inputs will be needed. The minimum set of required inputs includes the DRIVE MODE, FORWARD, REVERSE and E-STOP switches and the THROTTLE POT.

Pin Number	Function
A1	+5V SWITCH SUPPLY
A2	REVERSE
A3	BRAKE SWITCH
A4	FORWARD
A5	DRIVE MODE (KSI)
B1	INTERLOCK (CFO)
B2	EMERGENCY STOP
B3	THROTTLE SWITCH
B4	SPORT MODE
B5	IN B
C1	IN C
C2	+5V THROTTLE POT SUPPLY
C3	THROTTLE WIPER
C4	+5V BRAKE POT SUPPLY
C5	BRAKE WIPER
PE	0V POT COMMON

### Interlock (CFO)

The Interlock (Charge Flap Open) input is tied low internally and must be connected high (+5V) for the drive to operate. This input can be connected to a micro switch on the charging flap/latch to disable the drive when the car is being charged.

### Emergency Stop

The Emergency Stop input is tied low internally and must be connected high (+5V) for the drive to operate. For failsafe operation the input should be connected to the Normally Closed (NC) contacts when the Emergency Stop button is not active.



## Auxiliary Motor Outputs

Four auxiliary 12V/10A outputs are provided through an eight pin EPIC HD8 style connector. These outputs can be used to control low power DC motors (up to ~120W) such as water pump or vacuum pump motors. The ON state of the outputs can be set to coincide with a number of drive controller states, most commonly to activate when the drive enters the Active mode. The Low side return is switched to 0V via mosfets to activate the output. It is possible to PWM modulate the outputs if required.

Pin Number	Function
1	Channel One Return
2	Channel One +12V
3	Channel Two Return
4	Channel Two +12V
5	Channel Three Return
6	Channel Three +12V
7	Channel Four Return
8	Channel Four +12V



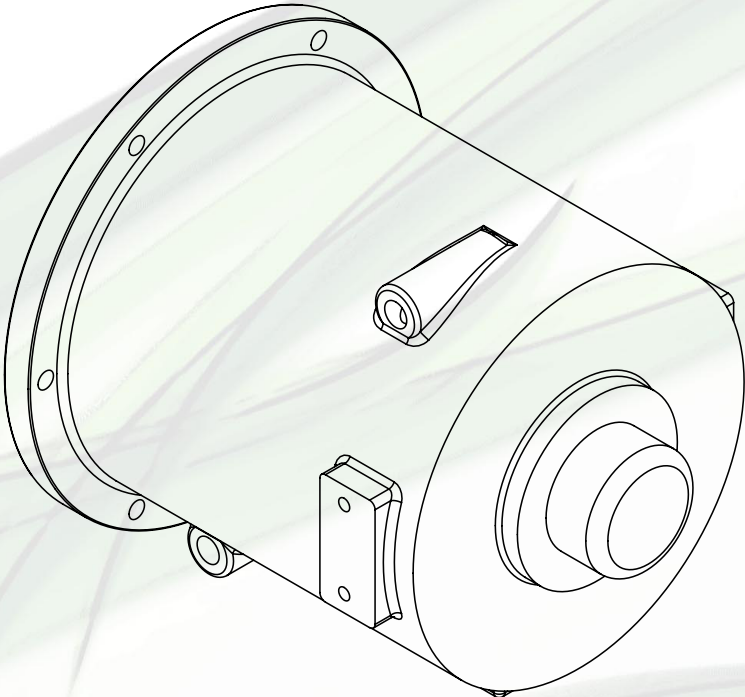
Specifications

# 35kW DC Brushless Permanent Magnet Motor

A DC Brushless motor is essentially a 3-phase AC synchronous motor with trapezoidal back EMF as opposed to sinusoidal back EMF. Rotor position feedback is provided from three Hall Sensors arranged 120° apart.

General Specifications	Value	Units
Rated Power	35	kW
Peak Power (30 Second)	70	kW
Peak Power (10 Second)	100	kW
Rated Current	121	Amps
Rated Voltage	320	Volts
Rated Torque	104	Nm
Overload Torque	275	Nm
Rated Speed	3200	RPM
Maximum Speed	4000	RPM
Back EMF	0.64	V/rad/sec
Phase Current Average	171	Amps
Weight	80	kg
Motor Feedback	Hall Sensors	
Frame	H160-B35	
Recommended Coolant Flow <sup>(1)</sup>	5-10	L/m

**Notes** <sup>(1)</sup> Dependent on ambient temperature and average motor loading.



Dimensions

Dimensions

