

SCOTT DRIVE 100



Features

- + Suitable for use with Permanent magnet (BLDC) or AC Induction motors
- + 100 kW Output Power (150kW Peak)
- + Firmware upgradeable via Ethernet port
- + 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 TCPIP 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 × 111	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 (in) 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	
1	+5V SWITCH SUPPLY	WHITE
2	REVERSE	BROWN
3	BRAKE SWITCH	GREEN
4	FORWARD	YELLOW
5	DRIVE MODE (KSI)	GREY
6	INTERLOCK (CFO)	PINK
7	EMERGENCY STOP	BLUE
8	SPORT MODE	RED
9	REGEN DISABLE	BLACK
10	THROTTLE SWITCH	VIOLET
11	+5V THROTTLE POT SUPPLY	GREY/PINK
12	THROTTLE WIPER	RED/BLUE
13	0V POT COMMON	WHITE/GREEN
14	+5V BRAKE POT SUPPLY	BROWN/GREEN
15	BRAKE WIPER	WHITE/YELLOW
16	0V POT COMMON	YELLOW/BROWN
17	+5V BRAKE POT SUPPLY	WHITE/GREY
18	SENSOR INPUT	GREY/BROWN
19	0V SENSOR SUPPLY	WHITE/PINK
20	QEP I / SPARE	PINK/BROWN
21	QEP A / SPARE	WHITE/BLUE
22	QEP B / SPARE	BROWN/BLUE
23	CONTACTOR OUT	BLUE
24	CONTACTOR IN	BLACK
PE	SHIELD	

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.

Motor Sensor Input

An EPIC M23 A1(N) connector is provided for all motor sensor power and input signals. The SD100 supports both 3-channel hall sensors found on BLDC motors and 2 or 3 channel optical sensors typically found on induction motors. A motor sensor cable can be supplied with the controller.

Pin Number	Function (SIEMENS)	Function (BLDC)	COLOR
1	ISOLATED GROUND	ISOLATED GROUND	WHITE
2	COMMON GROUND	COMMON GROUND	BROWN
3	ENCODER A	HALLSENSOR 1	GREEN
4	ENCODER B	HALLSENSOR 2	YELLOW
5	KTY TEMPERATURE 1	KTY TEMPERATURE 1	GREY
6	KTY TEMPERATURE 2	KTY TEMPERATURE 2	PINK
7	UNUSED	HALLSENSOR 3	BLUE
8	ENCODER SUPPLY +12V	ENCODER SUPPLY +12V	RED
9	SHIELD	SHIELD	BLACK



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



Dimensions

Dimensions

