HENSCHEL ROBOTICS

HDrive23-ETC

High-Performance Servo Drive with EtherCAT Connectivity

Precision Motion Control for Industrial Automation

The **HDrive23-ETC** is a compact, integrated servo drive solution combining advanced field-oriented control (FOC) technology with EtherCAT real-time communication. Designed for precision motion control applications.

Electrical Specifications

Parameter	Value	Unit
Supply Voltage Vs	12-24	V DC
Supply Voltage Vp	12-48	V DC
Reverse battery protection	Vs and Vp	-
Current Consumption Vs	0.1	A
Max. Current Consumption Vp	2.0	A
Max. Power Consumption	70	W
Power Consumption, 100% Torque, no load, Position control	<5	W

Control Modes

Parameter	Value	
Profile Position	Trajectory planning	
Profile Velocity	Speed control	
Profile Torque	Torque/force control	

Communication

Parameter	Value	Unit
Protocol	EtherCAT	-
Data Rate	100	Mbps
Cycle Time	1	ms
Min. Cycle Time	50	µs

Performance Specifications

Parameter	Value	Unit
Position Accuracy	±0.1	°
Stall Torque	0.6	Nm
Max Speed (@48V)	1500 (2500)	RPM
Encoder Type	14-bit magnetic absolute single turn	-
Current Control Bandwith	100-2000	Hz
Position/Speed Control Bandwidth	10-30	Hz
Current/Torque Control Update Rate	26	kHz
Position/Speed Control Update Rate	3	kHz

Digital Inputs

Parameter	Value	Unit
Input count	2	-
Input switch level	<8V low Level, >12V high level	-
Input maximum voltage	48	V

Physical Specifications

Parameter	Value	Unit
Rotor Inertia	0.280	$kgcm^2$
Weight	470	g
Mounting	M3 x 4	-
IP Rating	IP40	-
Operating Temperature	5 to 80	°C
Ambient Temperature	5 to 50	°C
Humidity	5 to 95	% RH Non-condensing

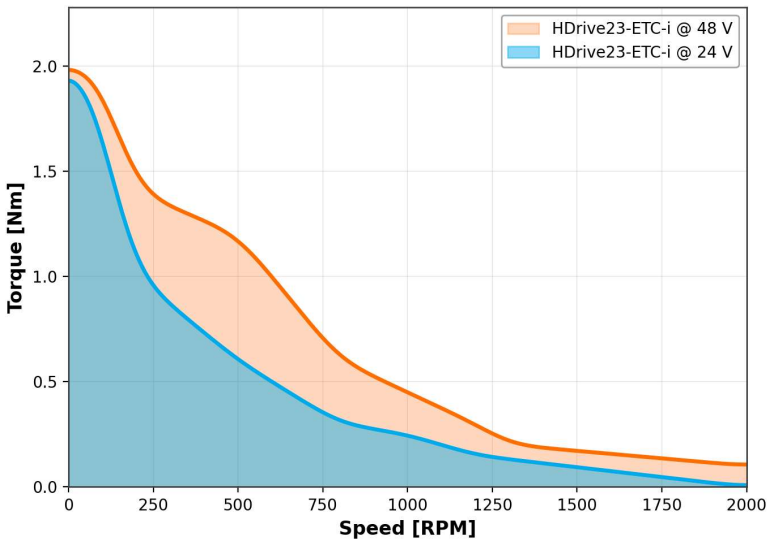
Connectors

Parameter	Value
Power Connector	4 Pin A-Coded M8 male
Digital Inputs	4 Pin A-Coded M8 female
EtherCAT In	4 Pin A-Coded M8 female
EtherCAT Out	4 Pin A-Coded M8 female

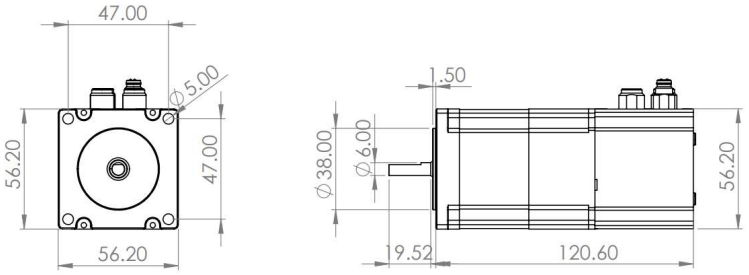
Key Features

- **Field-Oriented Control (FOC)** - Enhanced efficiency, low torque ripple
- **CiA 402 Drive Profile** - Standard EtherCAT compliance
- **EtherCAT Real-Time** - 100 Mbps, cycle times down to 50 µs
- **Multi-Mode Control** - Position, Velocity, and Torque modes
- **High Precision** - ±0.1° accuracy, ±0.05° repeatability

Speed / Torque Characteristics



Mechanical Specifications



- The **danymic load** on the shaft should be reduced as much as possible. A flexible coupling to the customer equipment should be used to not overconstrain the bearing.
- The shaft maximum**axial** load is 5N.
- The shaft maximum **radial** load is 10N @ 20 mm shaft length.