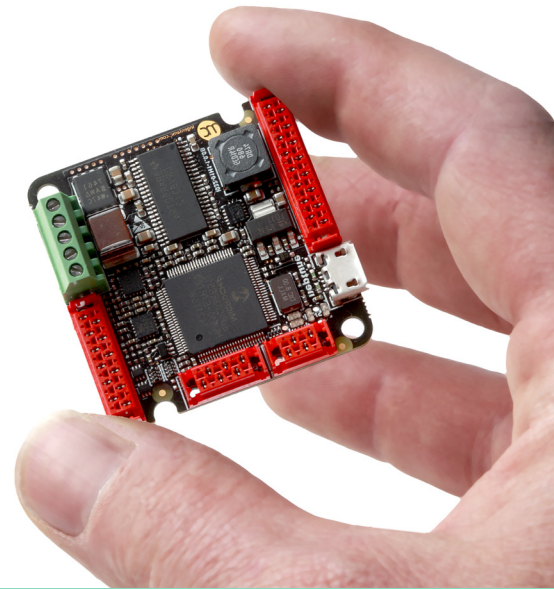


# NEPTUNE

## DIGITAL SERVO DRIVE

The micro servo drive Neptune has a foot print of just 40 x 40 mm and is capable of control motors with very low inductance without additional chokes due to its improved PWM algorithms. The Neptune is ready to interface EtherCAT or CANopen networks and includes standalone operation.

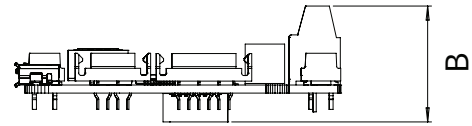
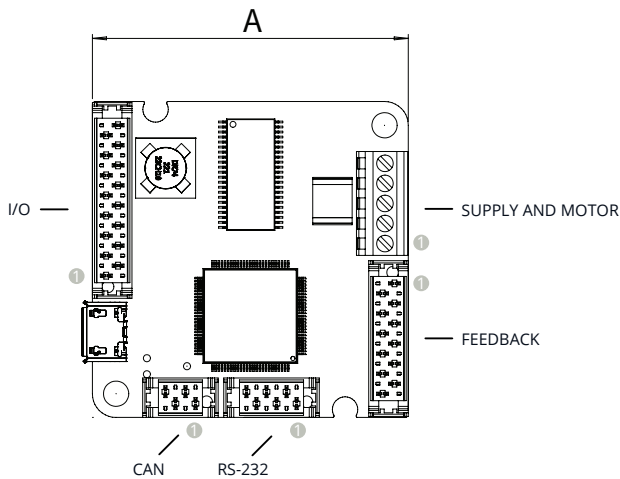
- ✓ Ultra compact and lightweight
- ✓ Low inductance motors
- ✓ CANopen and EtherCAT
- ✓ Standalone operation
- ✓ High frequency PWM



Neptune Digital Servo Drive	Units	NEP-2/48
Supply Voltage	V <sub>DC</sub>	9 - 48
Maximum Phase Peak Current (1 s)	A <sub>RMS</sub>	5
Maximum Phase Continuous Current	A <sub>RMS</sub>	2.5
Standby Power Consumption	W	1.5
Efficiency	%	>95
Supported Motor Types		Rotary and Linear Brushless, Brush DC, Voice Coil
Commutation		Sinusoidal and Trapezoidal
Minimum Motor Inductance	μH	100
Power Stage PWM Frequency	kHz	40, 80 (Configurable)
Current Sensing		2Ø, ± 1% Accuracy, 10 bit
Commutation Sensors		Digital Halls, Analog Halls, Incremental Encoder, PWM, Analog
Supported Feedback		DC Tachometer, Digital Halls, Analog Halls, Quadrature Incremental Encoder, PWM, Analog
Torque Loop Update Rate	kHz	10
Position and Velocity Update Rate	kHz	1
Motion Modes		Cyclic Sync, Interpolated, Profilers (Position, Velocity, Torque), Homing, Open Loop
Supported Command Sources		Network, USB, Serial, Analog Input, PWM, Encoder Follower/Electronic Gearing, Step and Direction, Standalone
Motion Controller		Yes, Standalone Operation with 64 Macros of 64 Commands
Digital Inputs		4 (TTL and PLC)
Analog Inputs		1 (±10 V), 1 (0-5 V)
Digital Outputs		2 (TTL and PLC)
User Configurable Protections		Bus Overvoltage and Undervoltage, Over and Under Temperature, Over Current, Overload (I <sup>2</sup> T), Open Load Protection
Hardware Protections		Short-circuit protections, ESD and EMI protections, Inverse Polarity Supply Protection, High Power Transient Voltage Suppressor for Short Braking
Software Protections		Mechanical Limits for Homing Modes, Hall Sequence/Combination Error
USB		Yes
Serial		RS-232 (daisy chain)
CANopen		Yes (DS-301, DS-303, DS-305, DS-306, DS-402)
EtherCAT		Yes (CoE)
Ambient Air Temperature (operating)	°C	-25 to 85 (over 50 with current derating)
Ambient Air Temperature (storage)	°C	-40 to 125
Maximum Humidity (non-condensing)	%	5 to 85
Dimensions	mm (in)	40 x 40 x 15 (1.57 x 1.57 x 0.59)
Weight	g (oz)	20 (0.7)

# INGENIA NEPTUNE DIGITAL SERVO DRIVE

## DRAWINGS



Dimension (mm)	NEP-2/48
A	40
B	15

## PINOUT

FEEDBACK		CAN		SUPPLY AND MOTOR		RS-232		I/O	
12	HALL_3	04	GND	05	+SUP	06	RET_TX	16	+5V_EXT
11	HALL_2	03	CAN_H	04	GND	05	GND	15	LS_GPI1
10	HALL_1	02	CAN_L	03	PH_C	04	TX	14	LS_GPI2
09	GND	01	GND	02	PC_B	03	RX	13	GND
08	ENC_Z- / REF-			01	PH_A	02	GND	12	AN_IN2+
07	ENC_Z+					01	RET_TX	11	AN_IN2-
06	ENC_B-							10	AN_IN1
05	ENC_B+							09	GND
04	ENC_A-							08	HS_GPI1- / PULSE- / PWM-
03	ENC_A+							07	HS_GPI1+ / PULSE+ / PWM+
02	GND							06	GND
01	+5V_OUT							05	GPO1
								04	GPO2
								03	GND
								02	HS_GPI2- / DIR-
								01	HS_GPI2+ / DIR+

## PART NUMBERING INFORMATION

NEP X / XX - Y - Z

### Power model:

2/48 = 2.5A cont//5 A peak @ 9-48 VDC

### Interfaces:

S = RS-232/USB  
 C = RS-232/USB/CANopen  
 E = RS-232/USB/EtherCAT

### Connectivity:

S = Connectors  
 P = Pin headers

## Option

## Part Number

IO Starter Kit	A-IOKIT
Feedback Cable	C-MM-FEED
IO Cable	C-MM-IO
RS-232 Cable	C-MM-RS232
CAN Cable	C-MM-CAN

For the most up to date information visit the support center documentation at [ingeniamc.com/support](http://ingeniamc.com/support)