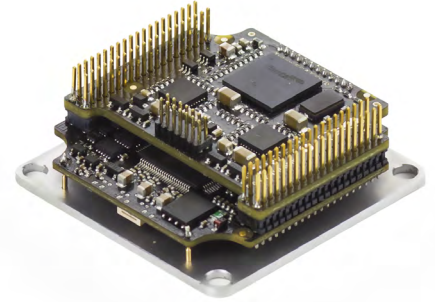


TRITON CORE

PLUG-IN SERVO DRIVE

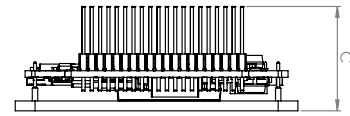
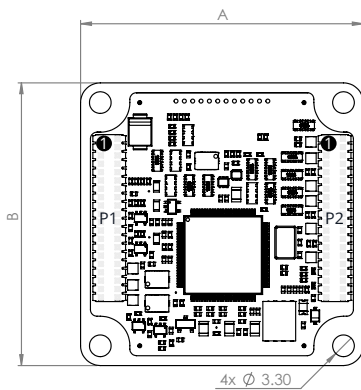
The micro servo drive Triton provides top performance and fully featured motion controller. With a footprint of just 43 x 43 mm it can control multiple motor types and is ready to interface EtherCAT or CANopen networks.

- ✓ Ultra compact design
- ✓ CANopen and EtherCAT
- ✓ Standalone operation
- ✓ Ready to be integrated



Triton Digital Servo Drive	Units	TRI-1/48	TRI-4/48	TRI-7/48
Supply Voltage	V _{DC}		8 - 48	
Maximum Phase Peak Current (2 s)	A _{RMS}	1	4	13
Maximum Phase Continuous Current	A _{RMS}	1	4	7
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		20, 80 (Configurable)	
Current Sensing			2Ø, ± 1% Accuracy, 10 bit	
Commutation Sensors		Digital Halls, Incremental Encoder, PWM, Analog		
Supported Feedback		SSI, Sin/Cos, Tacho, Digital/Analog Halls, Incremental Encoder, PWM, Analog Input, Resolver		
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	
Analog Inputs			2	
Digital Outputs			4	
User Configurable Protections		STO Full Functionality, Bus Overvoltage and Undervoltage, Over and Under Temperature, Over Current, Overload (I ² 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			Yes	
CANopen		Yes (DS-301, DS-303, DS-305, DS-306, DS-402)		
EtherCAT			Yes (CoE)	
Ambient Air Temperature (operating)	°C		-40 to 100 (over 50 with current derating)	
Ambient Air Temperature (storage)	°C		-50 to 125	
Maximum Humidity (non-condensing)	%		5 to 85	
Dimensions	mm (in)		43 x 43 x 15.88 (1.69 x 1.69 x 0.63)	
Weight	g (oz)		34 (1.19)	

DRAWINGS



Dimension (mm)	TRI-X/48
A	43
B	43
C	15.88

PINOUT

P1 CONNECTOR

01	V_LOGIC	02	VBUS
03	VBUS	04	VBUS
05	GND_P	06	GND_P
07	GND_P	08	GND_P
09	PE	10	PE
11	PE	12	PE
13	PHASE_C	14	PHASE_C
15	PHASE_C	16	PHASE_C
17	PHASE_B	18	PHASE_B
19	PHASE_B	20	PHASE_B
21	PHASE_A	22	PHASE_A
23	PHASE_A	24	PHASE_A
25	SHUNT_DRIVER	26	NC
27	BROKEN_WIRE	28	GND_D
29	MOTOR_TEMP	30	HALL_1
31	HALL_2	32	HALL_3
33	GND_D	34	5V_D
35	ENC_A+	36	ENC_A-
37	ENC_I+	38	ENC_I-
39	ENC_B+	40	ENC_B-

P2 CONNECTOR

01	OUTPUT_6	02	OUTPUT_5
03	OUTPUT_4	04	OUTPUT_3
05	GND_D	06	5V_D
07	OUTPUT_2	08	OUTPUT_1
09	ANALOG_IN_2	10	ANALOG_IN_1
11	HS_INPUT_2	12	HS_INPUT_1
13	LS_INPUT_4	14	LS_INPUT_3
15	3.3V_D	16	3.3V_REF_OUT
17	LS_INPUT_2	18	LS_INPUT_1
19	UART_TX	20	UART_RX
21	ABS_CS	22	GND_D
23	ABS_SDO	24	ABS_SCK
25	ABS_SDI	26	ENDAT_TX_EN
27	LED_CAN_RUN	28	CAN_TTL_RX
29	LED_CAN_ERR	30	CAN_TTL_TX
31	LED_FAULT/OK	32	GND_D
33	USB_DATA+	34	USB_SUPPLY
35	USB_DATA-	36	STO_IN
37	GND_D	38	5V_D
39	NC	40	NC

PART NUMBERING INFORMATION

TRI X / XX - Y - Z

Power model:

1/48 = 1 A cont, 1 A peak @ 8-48 VDC
 4/48 = 4 A cont, 4 A peak @ 8-48 VDC
 7/48 = 7 A cont, 13 A peak @ 8-48 VDC

Interfaces:

S = Serial/USB
 C = Serial/USB/CANopen
 E = Serial/USB/EtherCAT

Connectivity:

P = Pin headers

Option

Customized Connector Board

Part Number

ENG-TRI-CONBOARD

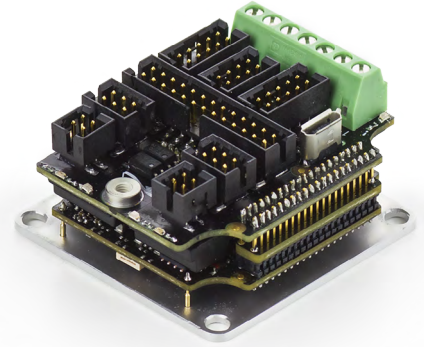


TRITON GO

DIGITAL SERVO DRIVE

The micro servo drive Triton provides top performance and fully featured motion controller. With a footprint of just 43 x 43 mm it can control multiple motor types and is ready to interface EtherCAT or CANopen networks.

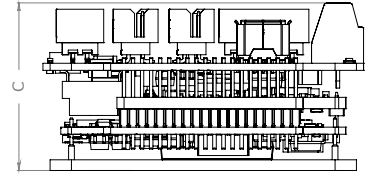
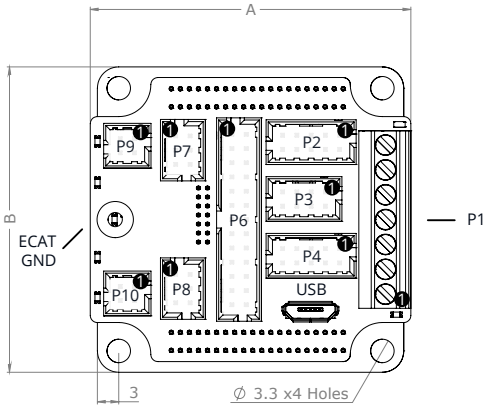
- ✓ Ultra compact design
- ✓ CANopen and EtherCAT
- ✓ Standalone operation
- ✓ Plug and Play



Triton Digital Servo Drive	Units	TRI-1/48	TRI-4/48	TRI-7/48
Supply Voltage	V _{DC}		8 - 48	
Maximum Phase Peak Current (2 s)	A _{RMS}	1	4	13
Maximum Phase Continuous Current	A _{RMS}	1	4	7
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		20, 80 (Configurable)	
Current Sensing			2Ø, ± 1% Accuracy, 10 bit	
Commutation Sensors		Digital Halls, Incremental Encoder, PWM, Analog		
Supported Feedback		SSI, Sin/Cos , Tacho, Digital/Analog Halls, Incremental Encoder, PWM, Analog Input		
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			4 (TTL and PLC)	
User Configurable Protections		STO Full Functionality, Bus Overvoltage and Undervoltage, Over and Under Temperature, Over Current, Overload (I ² 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-485	
CANopen		Yes (DS-301, DS-303, DS-305, DS-306, DS-402)		
EtherCAT			Yes (CoE)	
Ambient Air Temperature (operating)	°C		-40 to 100 (over 50 with current derating)	
Ambient Air Temperature (storage)	°C		-50 to 125	
Maximum Humidity (non-condensing)	%		5 to 85	
Dimensions	mm (in)		43 x 45 x 23.5 (1.69 x 1.77 x 0.93)	
Weight	g (oz)		42 (1.48)	

INGENIA TRITON DIGITAL SERVO DRIVE

DRAWINGS



Dimension (mm)	TRI-X/48
A	45
B	43
C	23.5

PINOUT

P1 CONNECTOR		P3 CONNECTOR		P6 CONNECTOR		P6 CONNECTOR		P8 CONNECTOR	
01	PH_A	01	PE	01	PE	20	AN_IN2+	01	STO_COMMON
02	PH_B	02	+3.3V_OUT	02	GND_D	21	GND_D	02	GND_D
03	PH_C	03	+5V_OUT	03	DIFF_GPI1-	22	GND_D	03	STO_1
04	PE	04	GND_D	04	DIFF_GPI1+	23	LED_RUN_K	04	+5V_OUT
05	GND_P	05	CLK+	05	HS_GPI2-	24	LED_ERR_K	05	STO_2
06	SHUNT	06	CLK-	06	HS_GPI2+	25	LED_LINK1_K	06	+5V_OUT
07	+SUP	07	DATA+	07	LS_GPI1	26	LED_LINK0_K		

P2 CONNECTOR		P4 CONNECTOR		P6 CONNECTOR		P7 CONNECTOR		P9-P10 ETHERCAT	
01	PE	01	PE	08	LS_GPI2	01	PE	01	TX_D+
02	+5V_OUT	02	+5V_OUT	09	LS_GPI3	02	GND_D	02	RX_D+
03	GND_D	03	GND_D	10	LS_GPI4	03	RX_485+	03	TX_D-
04	MOTOR_TEMP	04	+3.3V_OUT	11	GPO1	04	TX_485+	04	RX_D-
05	GND_D	05	ENC_A-	12	GPO2	05	RX_485-		
06	NC	06	ENC_A+	13	GPO3	06	TX_485-		
07	HALL1	07	ENC_B-	14	GPO4				
08	HALL2	08	ENC_B+	15	GND_D				
09	GND_D	09	ENC_Z-	16	+5V_OUT				
10	HALL3	10	ENC_Z+	17	NC				

P9-P10 CANOPEN	
01	NC (P9)
01	CAN_TERM (P10)
02	CAN_GND
03	CAN_L
04	+CAN_H

PART NUMBERING INFORMATION TRI X / XX - Y - Z

Power model: _____

1/48 = 1 A cont, 1 A peak @ 8-48 VDC
 4/48 = 4 A cont, 4 A peak @ 8-48 VDC
 7/48 = 7 A cont, 13 A peak @ 8-48 VDC

Interfaces: _____

S = RS-485/USB
 C = RS-485/USB/CANopen
 E = RS-485/USB/EtherCAT

Connectivity: _____

C = Connectors

Option	Part Number
Cable Kit	C-MG-CABLEKIT
Connectors and Crimping Kit	C-MG-CRIMPKIT

