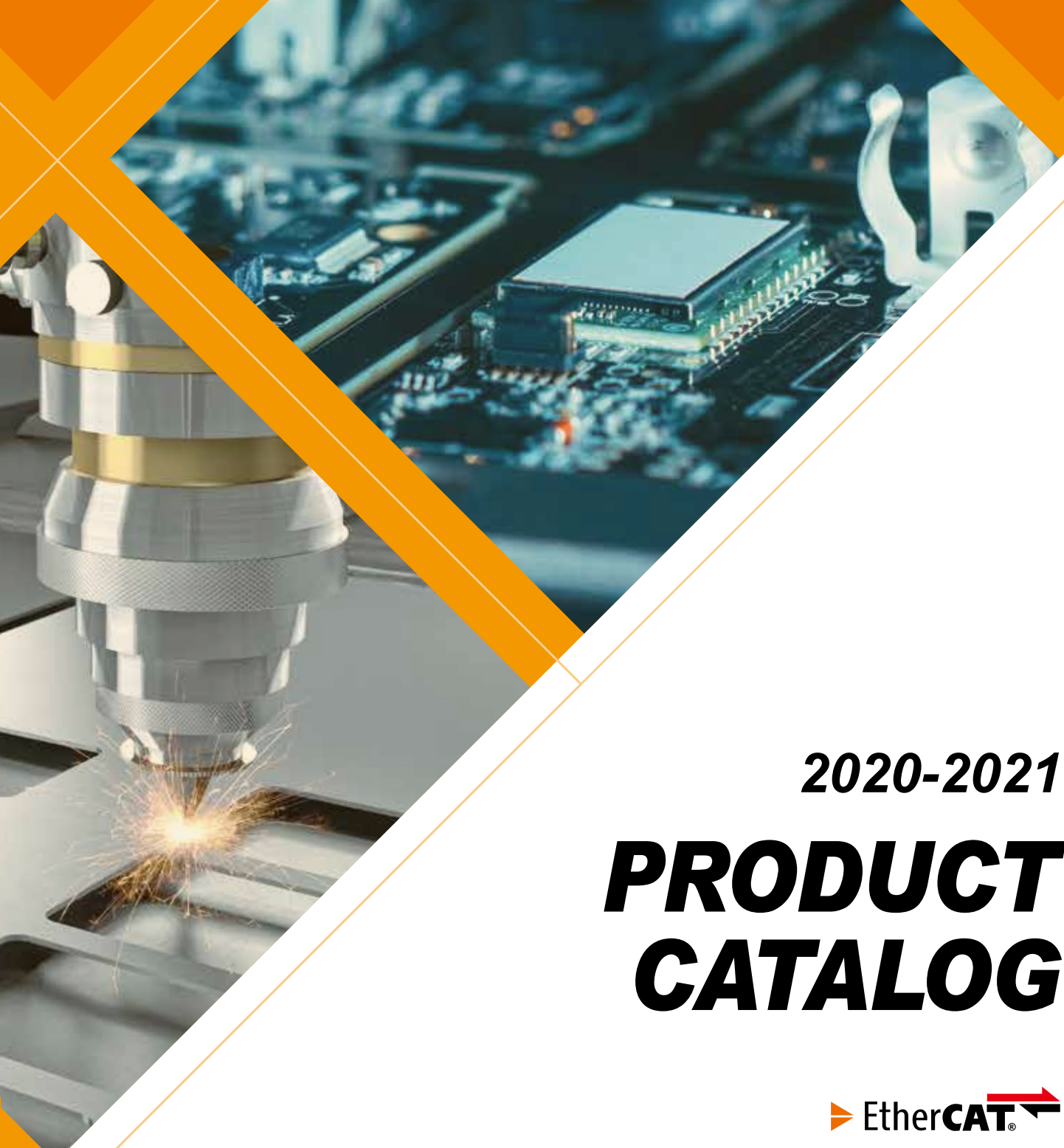

2020-2021

PRODUCT CATALOG

- EtherCAT®
- Motionnet®
- PCI EXPRESS®
- SmartPAC

Taiwan Pulse Motion

Inspire New Automation

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About
Taiwan Pulse Motion

Company Profile

Taiwan Pulse Motion (TPM), founded in 2009, is a forward-looking automation solution provider mainly focuses on EtherCAT® and Motion-net® based products. The product range covers digital I/O, analog I/O and closed-loop / micro-step drives and custom carrier board.

We are passionate about helping your business to grow through our specialized services, not only provide a wide range of EtherCAT / Motionnet products but also offer time-to-market custom design solutions in a variety of applications and industries.

Our mission is to inspire the new way for automation by fieldbus distributed control with Programmable Automation Controller (PAC) in comprehensive system integration.

Contact Us

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TPM YouTube facebook

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EtherCAT® Features

High-Speed Ethernet

The transimission rate of EtherCAT® is 2 x 100 Mbit/s which makes EtherCAT® the Fast Ethernet with full-duplex feature. For example, 1000 digital I/O can be distributed to 100 nodes in 30 µs.

Precise Synchronization

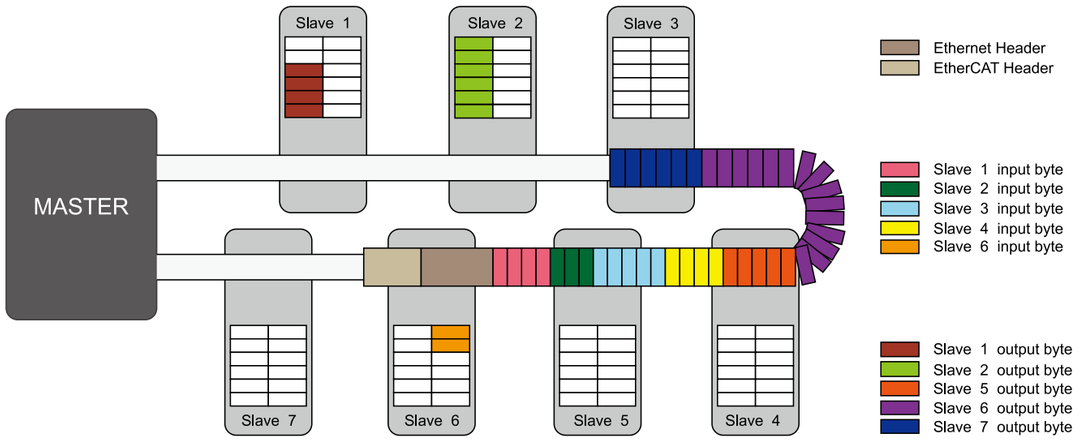
The DC (Distributed Clocks) in EtherCAT® can lead to exact adjustment with less 1 µs in synchronization with master and slaves.

Lower Solution Costs

With EtherCAT® filedbus, IPC can be replaced by PC-based system with smaller volume. Ethernet port is fine for EtherCAT® connection through CAT5 LAN cable.

Open Technology

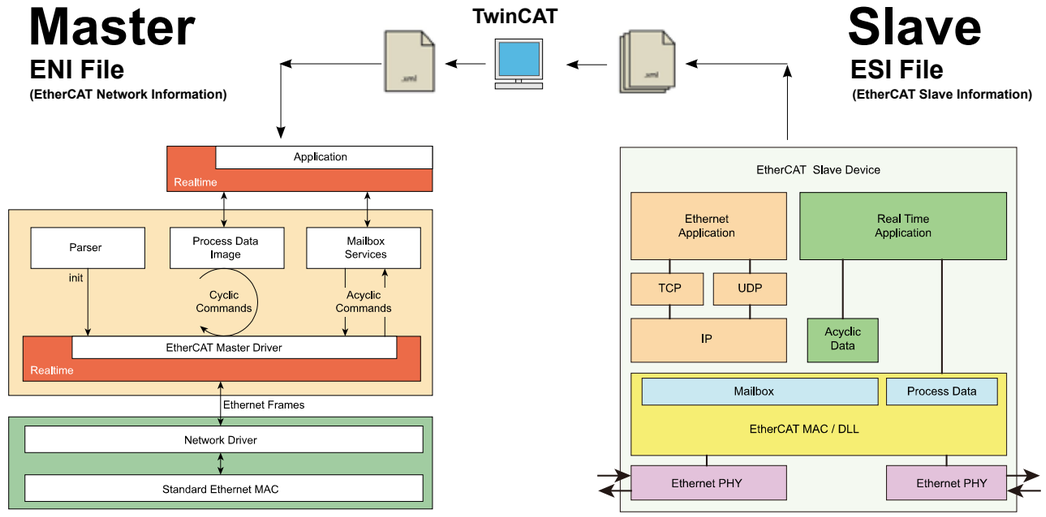
EtherCAT® is diclosed to SEMI, IEC, and ISO standard. The master is available for various Real-Time Operating System, such as, INtime, Linux, and so on.



In EtherCAT® network, the master sends an Etherne frame passing through all of the slave nodes. Each EtherCAT® datagram is a command that consists of a header, data and a working counter. EtherCAT® datagrams are sent by the EtherCAT® master to all connected EtherCAT® slaves. The data exchange is cyclically updated between master and slaves

EtherCAT® System Configurations

The EtherCAT network architecture consists of a master and slave protocol. The master uses the information from the ENI file to initialize and configure the EtherCAT network. The ESI file in XML format is provided by the vendor for each device that contain information about the device functionality. The ESI files are also available on TPM website for users to generate the ENI files.

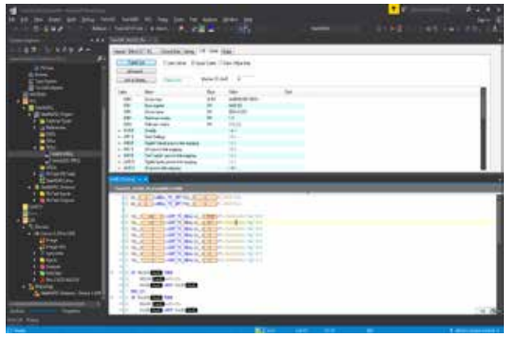


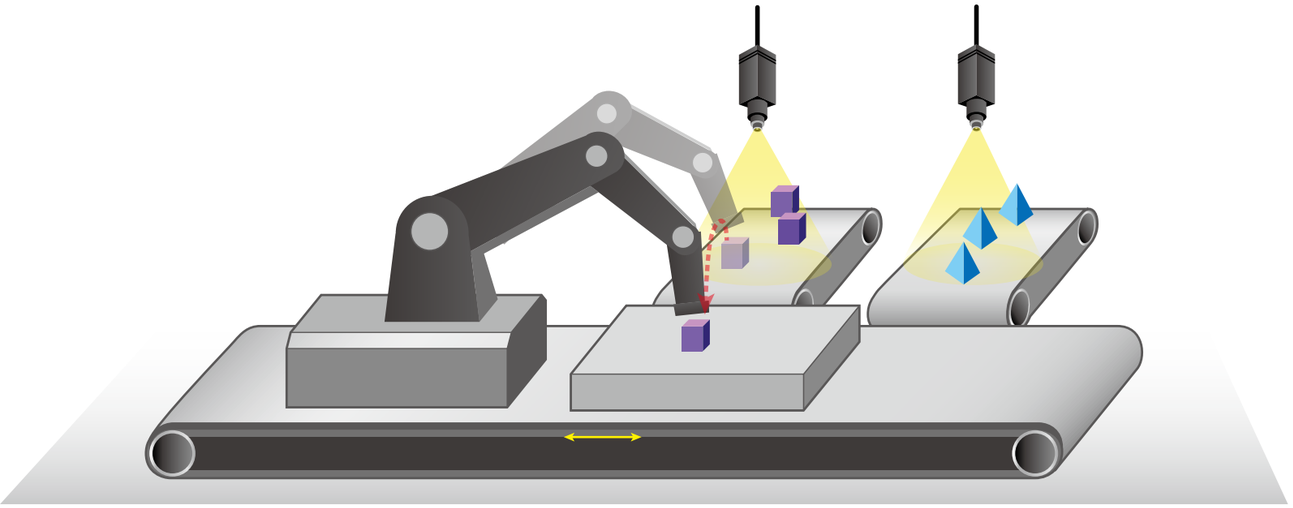
EtherCAT® Tool : TwinCAT

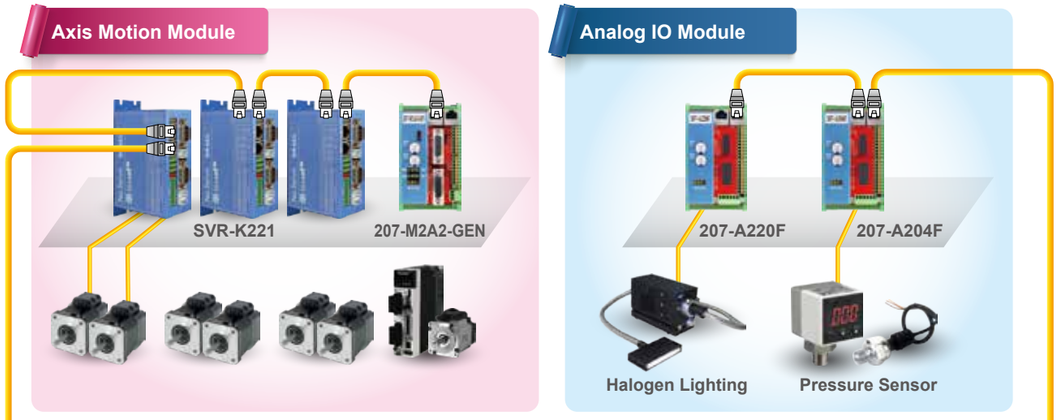
TwinCAT®

TwinCAT® is the EtherCAT® tool developed by Beckhoff. The TwinCAT® (The Windows Control and Automation Technology) automation suite forms the core of the control system. The TwinCAT® software system turns almost any PC-based system into a real-time control with multiple PLC, NC, CNC and/or robotics runtime systems.

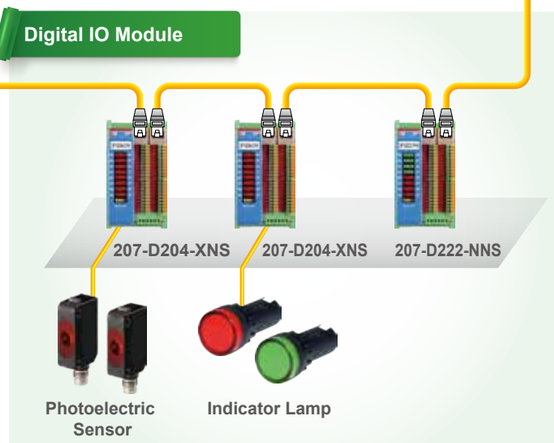
All of TPM modules are TwinCAT supported that can be simply connected to the master by using a RJ45 Ethernet cable. The TwinCAT system manager configures the slave station, and completes the mutual mapping of I/O port between the master station and the slave station.







TPC-7000



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- Analog IO Module：207-A220F(P.38) / 207-A204F(P.40)
- Digital IO Module：207-D204-XNS(P.25) / 207-D222-NNS(P.26)
- TPC-7000(P.189)

Closed-Loop

SVR - K □ □ □

Series
SVR : Closed-Loop

Drive Series Type
K : EtherCAT
M : Motionnet

Current
1 : 1.8~2.8A
2 : 4.2A

Num of Axis
1 : 1-Axis
2 : 2-Axis

Mounting
1 : Wall & Stand
2 : Wall

Model Name
SVR-K111
SVR-K112
SVR-K221

Micro-Step

STP - K □ □ □

Series
STP : Micro-Step

Drive Series Type
K : EtherCAT
M : Motionnet

Current
1 : 1.8~2.8A
2 : 4.2A

Num of Axis
1: 1-Axis
2: 2-Axis

Mounting
1 : Wall & Stand
2 : Wall

Model Name
STP-K111
STP-K112
STP-K221

Nu-Servo® Drive Selection Guide

Closed-Loop



Features Models		SVR-K111	SVR-K112	SVR-K221
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	0.5 / 1 / 2 / 4 ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100 Mbps		
	Axis Num	1	1	2
	CiA402 Device Profile	CSP, PP, Home		
	Incremental encoder input	±EA, ±EB		
	Encoder index signal input	±EZ		
	MI/O input signal	PEL, MEL, ORG, and EMG		
	User I/O Signal	2DI, 1DO	2DI, 1DO	4DI, 2DO
	Position control	Incremental / Absolute mode Data range: 32 bits		
	Homing mode	ORG, EZ, Limit & totally 31 types		
Drive	Input voltage	24 or 48 VDC	24 or 48 VDC	24 VDC
	Drive model	2-phase, bi-polar current driving system		
	Resolution	500 ~ 50,000 pulse/revolution configured by software		
	Configurable Current by software	Max. 2.8A	Max. 4.2A	Max. 1.8A / axis
	LED indicator	PWR, RUN, ERR, SVON, ALM, INP, EMG, ORG, PEL and MEL		
	Power consumption	3.1W typical (130mA/24VDC) no load		
	Ambient temperature	In use: 0~50˚C In storage: -20~70˚C		
	Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)		
	Vib. resist	0.5G		
Page number		P.15	P.15	P.16

Micro-Step



Features Models		STP-K111	STP-K112	STP-K221
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	0.5 / 1 / 2 / 4 ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100 Mbps		
	Axis Num	1	1	2
	CiA402 Device Profile	CSP, PP, Home		
	MI/O input signal	PEL, MEL, ORG, and EMG		
	User I/O Signal	2DI, 1DO	2DI, 1DO	4DI, 2DO
	Position control	Incremental / Absolute mode Data range: 32 bits		
	Homing mode	ORG, EZ, Limit & totally 31 types		
Drive	Input voltage	24 or 48 VDC	24 or 48 VDC	24 VDC
	Drive model	2-phase, bi-polar current driving system		
	Resolution	500 ~ 50,000 pulse/revolution configured by software		
	Configurable Current by software	Max. 2.8A	Max. 4.2A	Max. 1.8A / axis
	LED indicator	PWR, RUN, ERR, SVON, ALM, INP, EMG, ORG, PEL and MEL		
	Power consumption	3.1W typical (130mA/24VDC) no load		
	Ambient temperature	In use: 0~50˚C In storage: -20~70˚C		
	Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)		
	Vib. resist	0.5G		
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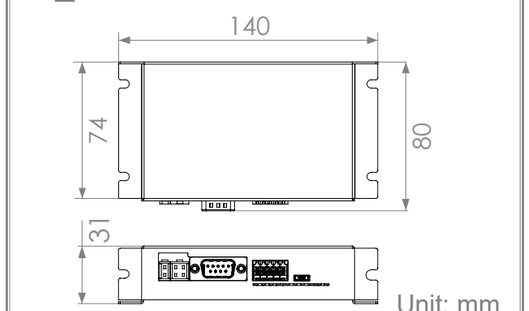
SVR-K111/K112

1-Axis Closed-Loop

Features

- EtherCAT Max. 100Mbps transfer rate
- 1-axis Closed-Loop Stepper Drive
- K111: Current 2.8A / K112: Current 4.2A
- Bi-polar current driving system
- Resolution: 500~50,000 pulse / revolution
- Encoder feedback
- DIP switch for address setting
- Dimensions: L-74 x W-140 x H-31 mm

Dimension Diagram



Ordering information

- **SVR-K111**
  EtherCAT® 1-axis 2-phase closed-loop drive up to 2.8A
- **SVR-K112**
  EtherCAT® 1-axis 2-phase closed-loop drive up to 4.2A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
Incremental encoder input	±EA, ±EB
Encoder index signal input	±EZ
MI/O input signal	PEL, MEL, ORG, and EMG
User I/O Signal	2DI, 1DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types

Driver	
Input voltage	24 or 48 VDC
Drive model	2-phase, bi-polar current driving system
Resolution	500 ~ 50,000 pulse/ revolution configured by software
Current setting	Current: 2.8A (K111) / 4.2A (K112) Selected: configured by software
LED indicator	PWR, RUN, ERR, SVON, ALM, INP, EMG, ORG, PEL and MEL
Power consumption	3.1W typical (130mA / 24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	In use: 35~85% (Noncondensing)
Vib. resist	0.5G

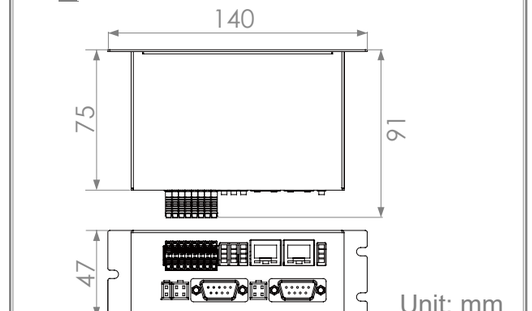
SVR-K221

2-Axis Closed-Loop

Features

- EtherCAT Max. 100Mbps transfer rate
- 2-axis Closed-Loop Stepper Drive
- K221: Current 1.8A / axis
- Bi-polar current driving system
- Resolution: 500~50,000 pulse/revolution
- Encoder feedback
- DIP switch for address setting
- Dimensions: L-75 x W-140 x H-47 mm

Dimension Diagram



Ordering information

- **SVR-K221**
  EtherCAT® 2-axis 2-phase closed-loop drive up to 1.8A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
Incremental encoder input	±EA x2 , ±EB x2
Encoder index signal input	±EZ x2
MI/O input signal	PEL x2, MEL x2, ORG x2, and EMG x2
User I/O	4DI, 2DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types

Driver	
Input voltage	24VDC
Drive model	2-phase, bi-polar current driving system
Resolution	500 ~ 50,000 pulse/ revolution configured by software
Current setting	1.8A / axis Selected: configured by software
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG
Power consumption	3.1W typical (130mA / 24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)
Vib. resist	0.5G

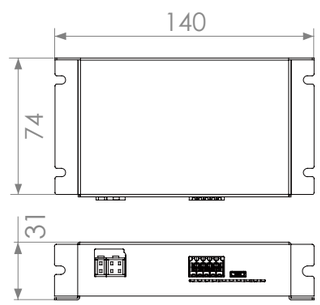
STP-K111/K112

1-Axis Open-Loop

Features

- EtherCAT Max. 100Mbps transfer rate
- 1-axis Micro-Stepper Drive
- K111: Current 2.8A / K112: Current 4.2A
- Bi-polar current driving system
- Resolution: 500~50,000 pulse/revolution
- DIP switch for address setting
- Dimensions: L-74 x W-140 x H-31 mm

Dimension Diagram



Ordering information

- **STP-K111**
  EtherCAT® 1-axis 2-phase micro-step drive up to 2.8A
- **STP-K112**
  EtherCAT® 1-axis 2-phase micro-step drive up to 4.2A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
MI/O input signal	PEL, MEL, ORG and EMG
User I/O	2DI, 1DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, Limit & totally 31 types

Driver	
Input voltage	24 or 48 VDC
Drive model	2-phase, bi-polar current driving system
Resolution	500 ~ 50,000 pulse/ revolution configured by software
Current setting	Current: 2.8A (K111) / 4.2A (K112) Selected: configured by software
LED indicator	PWR, RUN, ERR, SVON, ALM, EMG, ORG, PEL and MEL
Power consumption	3.0W typical (120mA/24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)
Vib. resist	0.5G

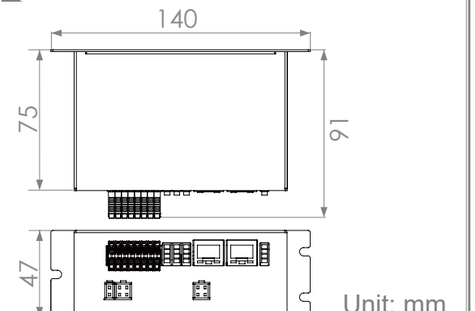
STP-K221

2-Axis Open-Loop

Features

- EtherCAT Max. 100Mbps transfer rate
- 2-axis Micro-Stepper Drive
- K221: Current 1.8A / axis
- Bi-polar current driving system
- Resolution: 500~50,000 pulse/revolution
- DIP switch for address setting
- Dimensions: L-75 x W-140 x H-47 mm

Dimension Diagram



Ordering information

- **STP-K221**
  EtherCAT® 2-axis 2-phase micro-step drive up to 1.8A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
MI/O input signal	PEL x2, MEL x2, ORG x2, and EMG x2
User I/O	4DI, 2DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types

Driver	
Input voltage	24VDC
Drive model	2-phase, bi-polar current driving system
Resolution	500 ~ 50,000 pulse/ revolution configured by software
Current setting	1.8A / axis Selected: configured by software
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG
Power consumption	3.1W typical (130mA/24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	IIn use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)
Vib. resist	0.5G

Digital I/O Modules

207 - D □ □ □ - □□□

Series
207: 207 Series

Slave Type
D: Digital I/O

Capacity
2: Standard Series
4: High Output Current Series

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
2: 16 Channels
4: 32 Channels

Digital Input
0: None
2: 16 Channels
4: 32 Channels

Model Name
207-D240-NX / PX
207-D204-XNS / XPS
207-D222-NNS / PPS
207-D402H-XNS / XPS
207-D411H-NNS / PPS

207 - D 5 □ □ - □□□

Series
207: 207 Series

Slave Type
D: Digital I/O

Capacity
5: High-Density Series

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
1: 16 Channels
2: 32 Channels
3: 48 Channels

Digital Input
0: None
2: 32 Channels
3: 48 Channels
4: 64 Channels
6: 96 Channels

Model Name
207-D521-NNS / PPS
207-D522-NNS / PPS
207-D532-NNS / PPS
207-D533-NNS / PPS
207-D542-NNS / PPS
207-D540-NX / PX
207-D560-NX / PX

Digital I/O Modules



Features Models		207-D240-NX / PX	207-D204-XNS / XPS	207-D222-NNS / PPS
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms		
	Input channels	32	0	16
	Output channels	0	32	16
	Input type	NPN / PNP type	N/A	NPN / PNP type
	Input impedance	5.6KΩ/0.5W	N/A	5.6KΩ/0.5W
	Input current	±5mA(Max)	N/A	±5mA(Max)
	Output type	N/A	NPN / PNP type	NPN / PNP type
	Output capacity (mA)	N/A	100	100
	Response time	On to Off, about 50μs ; Off to On, about 10μs		
General	Power input	24VDC±10%		
	Power consumption	3W typical		
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-122 x W-65 x H-104	L-122 x W-65 x H-104	L-122 x W-65 x H-104
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Digital I/O Modules



Features Models		207-D402H-XNS / XPS	207-D411H-NNS / PPS	207-D521-NNS / PPS
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms		
	Input channels	0	8	32
	Output channels	16	8	16
	Input type	N/A	NPN / PNP type	NPN / PNP type
	Input impedance	N/A	5.6KΩ/0.5W	5.6KΩ/0.5W
	Input current	N/A	±5mA(Max)	±5mA(Max)
	Output type	NPN / PNP type		
	Output capacity (mA)	500	500	100
	Response time	On to Off, about 50μs ; Off to On, about 10μs		
General	Power input	24VDC±10%		
	Power consumption	3W typical	3W typical	6W
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-122 x W-65 x H-104	L-122 x W-65 x H-104	L-122 x W-94 x H-103
Page number		P.27	P.27	P.28

Digital I/O Modules



Features Models		207-D522-NNS / PPS	207-D532-NNS / PPS	207-D533-NNS / PPS
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms		
	Input channels	32	48	48
	Output channels	32	32	48
	Input type	NPN / PNP type		
	Input impedance	5.6KΩ/0.5W		
	Input current	±5mA(Max)		
	Output type	NPN / PNP type		
	Output capacity (mA)	100	100	100
	Response time	On to Off, about 50μs ; Off to On, about 10μs		
General	Power input	24VDC±10%		
	Power consumption	6W typical		
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-122 x W-105 x H-104	L-122 x W-116 x H-104	L-122 x W-127 x H-104
Page number		P.29	P.30	P.31

Digital I/O Modules (DIO)

NEW NEW NEW

Features Models		207-D542-NNS / PPS	207-D540-NX / PX	207-D560-NX / PX
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms		
	Input channels	64	64	96
	Output channels	32	0	0
	Input type	NPN / PNP type		
	Input impedance	5.6KΩ/0.5W		
	Input current	±5mA(Max)		
	Output type	NPN / PNP type	NPN / PNP type	N/A
	Output capacity (mA)	100	100	N/A
	Response time	On to Off, about 50μs ; Off to On, about 10μs		
General	Power input	24VDC±10%		
	Power consumption	6W typical		
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-122 x W-127 x H-104	L-122 x W-105 x H-104	L-122 x W-127 x H-104
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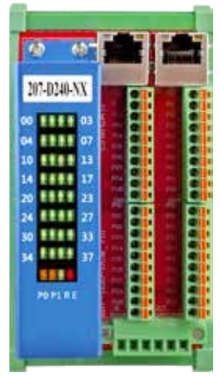
207-D240-NX
207-D240-PX

32-Ch. DI Slave Module with Pluggable Terminal



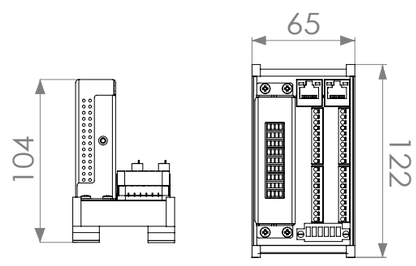
Features

- 32-Ch. DI Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-65 x H-104 mm)

Ordering information

- **207-D240-NX**
  32-Ch. Digital Input (DI) with NPN type
- **207-D240-PX**
  32-Ch. Digital Input (DI) with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

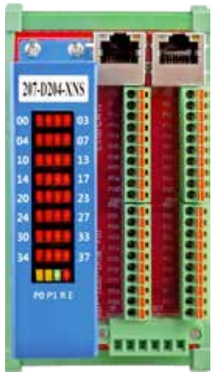
EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Response time	On to Off, about 50μs; Off to On, about 10μs
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

I/O connector

CN0		CN1		CN2		CN3	
I00	01	I10	01	I20	01	I30	01
I01	02	I11	02	I21	02	I31	02
I02	03	I12	03	I22	03	I32	03
I03	04	I13	04	I23	04	I33	04
I04	05	I14	05	I24	05	I34	05
I05	06	I15	06	I25	06	I35	06
I06	07	I16	07	I26	07	I36	07
I07	08	I17	08	I27	08	I37	08
24V	09	24V	09	24V	09	24V	09
GND	10	GND	10	GND	10	GND	10

207-D204-XNS
207-D204-XPS

32-Ch. DO Slave Module with Pluggable Terminal



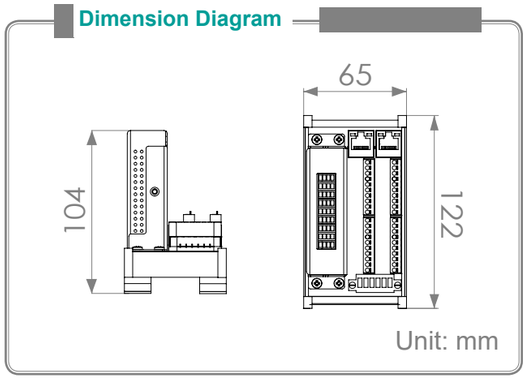
Features

- 32-Ch. DO Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-65 x H-104 mm)

Ordering information

- **207-D204-XNS**
  32-Ch. Digital Output (DO) with NPN type
- **207-D204-XPS**
  32-Ch. Digital Output (DO) with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



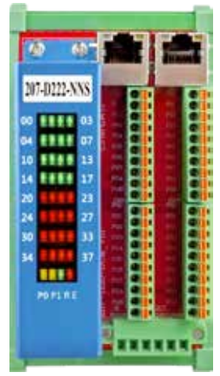
Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs;Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-D222-NNS
207-D222-PPS

32-Ch. DI/O Slave Module with Pluggable Terminal



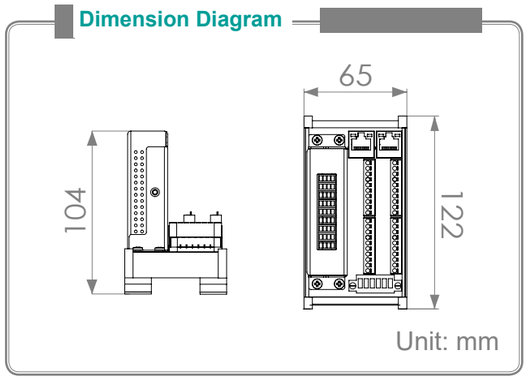
Features

- 32-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-65 x H-104 mm)

Ordering information

- **207-D222-NNS**
  16-Ch. Digital Input (DI) and 16-Ch. Digital Output (DO) with NPN type
- **207-D222-PPS**
  16-Ch. Digital Input (DI) and 16-Ch. Digital Output (DO) with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-D402H-XNS / XPS
207-D411H-NNS / PPS

16-Ch. DI/O Slave Module with Pluggable Terminal

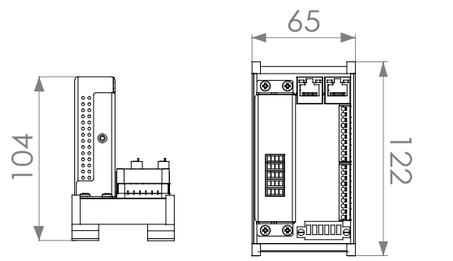
Features

- 16-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-65 x H-104 mm)

Ordering information

- **207-D402H-XNS / XPS**
  16-Ch. Digital output (DO) with NPN type
- **207-D411H-NNS / PPS**
  8-Ch. DI and 8-Ch. DO with NPN type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: Open Drain MOSFET; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 500mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	4A (max) for each port (8-Ch.)
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-D521-NNS
207-D521-PPS

48-Ch. DI/O Slave Module with Pluggable Terminal

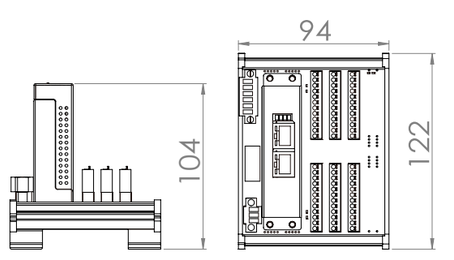
Features

- 48-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-94 x H-104 mm)

Ordering information

- **207-D521-NNS**
  32-Ch. DI and 16-Ch. DO with NPN type
- **207-D521-PPS**
  32-Ch. DI and 16-Ch. DO with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)
General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D522-NNS
207-D522-PPS

64-Ch. DI/O Slave Module with Pluggable Terminal

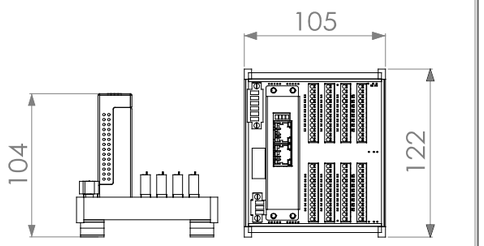
Features

- 64-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-105 x H-104 mm)

Ordering information

- **207-D522-NNS**
  32-Ch. DI and 32-Ch. DO with NPN type
- **207-D522-PPS**
  32-Ch. DI and 32-Ch. DO with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D532-NNS
207-D532-PPS

80-Ch. DI/O Slave Module with Pluggable Terminal

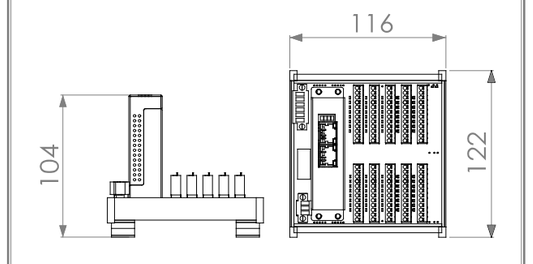
Features

- 80-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-116 x H-104 mm)

Ordering information

- **207-D532-NNS**
  48-Ch. DI and 32-Ch. DO with NPN type
- **207-D532-PPS**
  48-Ch. DI and 32-Ch. DO with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D533-NNS
207-D533-PPS

96-Ch. DI/O Slave Module with Pluggable Terminal

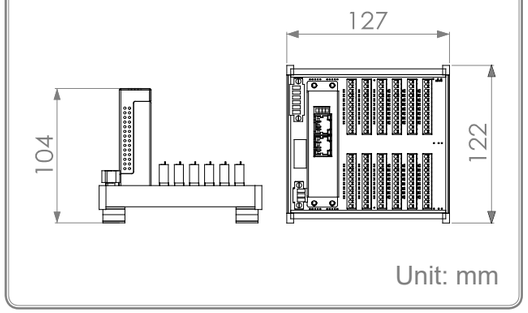
Features

- 96-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-127 x H-104 mm)

Ordering information

- **207-D533-NNS**
  48-Ch. DI and 48-Ch. DO with NPN type
- **207-D533-PPS**
  48-Ch. DI and 48-Ch. DO with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D542-NNS NEW
207-D542-PPS NEW

96-Ch. DI/O Slave Module with Pluggable Terminal

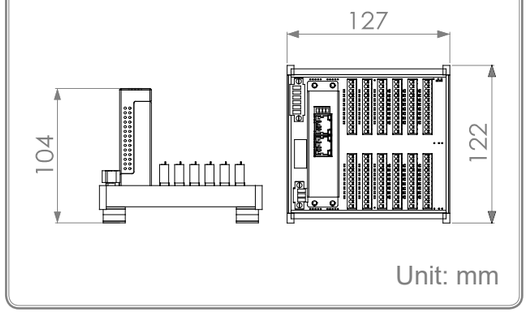
Features

- 96-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-127 x H-104 mm)

Ordering information

- **207-D542-NNS**
  64-Ch. DI and 32-Ch. DO with NPN type
- **207-D542-PPS**
  64-Ch. DI and 32-Ch. DO with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN: open collector Darlington; PNP: MOSFET-P; Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)

General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D540-NX NEW
207-D540-PX NEW

64-Ch. DI/O Slave Module with Pluggable Terminal

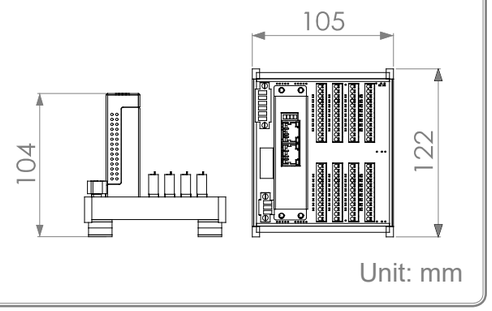
Features

- 64-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-105 x H-104 mm)

Ordering information

- **207-D540-NX**
  64-Ch. DI with NPN type
- **207-D540-PX**
  64-Ch. DI with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Response time	On to Off, about 50μs; Off to On, about 10μs
General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

207-D560-NX NEW
207-D560-PX NEW

96-Ch. DI/O Slave Module with Pluggable Terminal

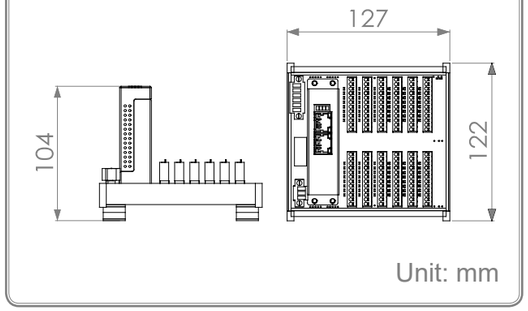
Features

- 96-Ch. DI/O Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIP switch for address setting
- DIN rail mounting (L-122 x W-127 x H-104 mm)

Ordering information

- **207-D560-NX**
  96-Ch. DI with NPN type
- **207-D560-PX**
  96-Ch. DI with PNP type
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Response time	On to Off, about 50μs; Off to On, about 10μs
General	
Power input	24VDC±10%
Power consumption	6W typical
Working temperature	0 to 60˚C

Analog I/O Modules

207 - A □ □ □ □

Series
207: 207 Series

Slave Type
A: Analog I/O

Capacity
2: Standard Series

Resolution
C: 12-bit
F: 16-bit

Analog Output
0: None
1: 2 Channels
2: 4 Channels
4: 8 Channels

Analog Input
0: None
2: 8 Channels

Model Name
207-A220F
207-A220FI
207-A202F
207-A204F
207-A221FC

Analog I/O Modules



Features Models		207-A220F	207-A220FI	207-A202F
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms		
AD Converter	Input channels	8	8	0
	Effective resolution	16 bits	16 bits	N/A
	Accuracy	±0.2%	±0.5% (FI)	N/A
	Conversion time	~ 125μs	~ 125μs	N/A
	Input range	Single End: ±10V Differential: ±10V	Single End: 4~20mA	N/A
DA Converter	Output channels	0	0	4
	Effective resolution	N/A	N/A	16 bits
	Accuracy	N/A	N/A	±0.1%
	Output range	N/A	N/A	±10V
General	Power input	24VDC±10%		
	Power consumption	3W typical		
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-122 x W-66 x H-104	L-122 x W-66 x H-104	L-122 x W-66 x H-104
Page number		P.38	P.38	P.39

Analog I/O Modules

Features Models		207-A204F	207-A221FC
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex	
	Distributed Clock	1ms	
	Cable type	CAT5 UTP/STP Ethernet cable	
	Surge protection	10KV	
	Transmission speed	100Mbps	
	I/O isolation voltage	3750Vrms	
AD Converter	Input channels	0	8
	Effective resolution	N/A	16 bits
	Accuracy	N/A	±0.5%
	Conversion time	N/A	~ 125μs
	Input range	N/A	Single End: ±10V
DA Converter	Output channels	8	2
	Effective resolution	16 bits	12 bits
	Accuracy	±0.1%	±0.5%
	Output range	±10V	±10V
General	Power input	24VDC±10%	
	Power consumption	3W typical	
	Working temperature	0 to 60˚C	
	Dimension (mm)	L-122 x W-66 x H-104	L-122 x W-66 x H-104
Page number		P.40	P.41

207-A220F
207-A220FI

8-Ch. AI Slave Module with Pluggable Terminal

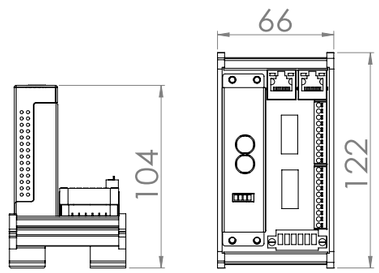
Features

- 8-Ch. AI Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Rotary switch for address setting
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **207-A220F**
  8-Ch. Analog Input (AI) w. ±10V
- **207-A220FI**
  8-Ch. Analog Input (AI) w. 4~20mA
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
AD Converter	
Effective resolution	16 bits
Accuracy	±0.2% (F); ±0.5% (FI)
Conversion time	~ 125μs
Input range	Single End: ±10V Differential: ±10V
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-A202F

4-Ch. AO Slave Module with Pluggable Terminal

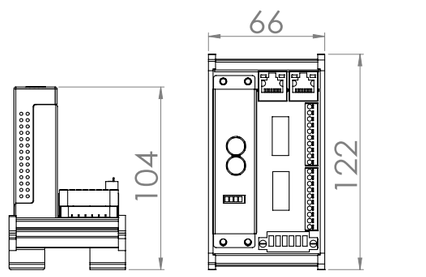
Features

- 4-Ch. AO Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Rotary switch for address setting
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **207-A202F**
  4-Ch. Analog Output (AO) w. ±10V
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
DA Converter	
Effective resolution	16 bits
Accuracy	±0.1%
Output range	±10V
Operation mode	Ramp and Noise, Single Value, Single Coupled Value, Pattern
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-A204F

8-Ch. AO Slave Module with Pluggable Terminal

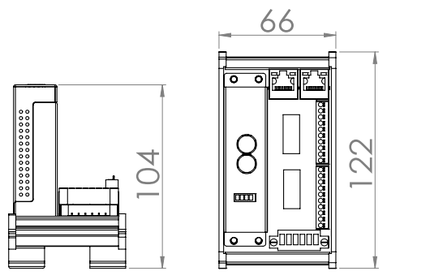
Features

- 8-Ch. AO Slave Module with Pluggable Terminal
- Max. 100Mbps transfer rate
- Rotary switch for address setting
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **207-A204F**
  8-Ch. Analog Output (AO)
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
DA Converter	
Effective resolution	16 bits
Accuracy	±0.1%
Output range	±10V
Operation mode	Ramp and Noise, Single Value, Single Coupled Value, Pattern
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-A221FC

8-Ch. AI and 2-Ch. AO slave module

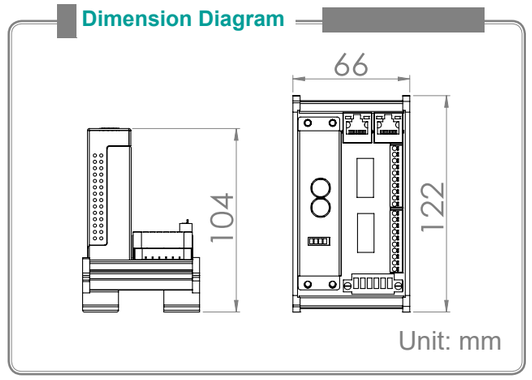
Features

- 8-Ch. AI and 2-Ch. AO slave module
- Max. 100Mbps transfer rate
- Rotary switch for address setting
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **207-A221FC**
  8-Ch. Analog Input (AI) and 2-Ch. Analog Output (AO)
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms

AD Converter	
Number of inputs	8-channel AI
Effective resolution	16 bits
Accuracy	±0.2%
Conversion time	~ 125μs
Input range	Single End: ±10V

DA Converter	
Number of outputs	2-channel AO
Effective resolution	12 bits
Output range	±10V

General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

NOTES

Pulse Slave Modules

207 - C □ □ □ □

Series
207: 207 Series

Slave Type
C: Encoder I/O

Capacity
2: Standard Series

Advanced Function
C: Compare Trigger Output
D: Digital Output

Digital Input
4: 4 Channels

Encoder
4: 4 Channels

Model Name
207-C244C
207-C244D

Motion Slave Modules

207 - M 2 A 2 - GEN

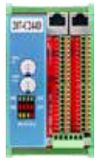
Series
207: 207 Series

Slave Type
M: Motion Control

Num of Axis
2: 2-Axis

Model Name
207-M2A2-GEN

Pulse Slave Modules (Pulse)

Features Models		207-C244C	207-C244D
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex	
	Distributed Clock	1 ms	
	Cable type	CAT5 UTP/STP Ethernet cable	
	Surge protection	10KV	
	Transmission speed	100Mbps	
	I/O isolation voltage	3750Vrms	
	Encoder Input channels	4 channels	
	Encoder counter	32-bit Incremental	
	Encoder Input Frequency	Max. 4MHz, , 6.5MHz for 4xAB	
	Digital Input channels	4	4
	Digital Output channels	4	0
	Position compare output	N/A	4 channels
	Input type	NPN	
	Isolated input voltage	Logic level 0: Max. 1V ; Logic level 1: 5V or 24V	
	Incremental encoder	±EA x4, ±EB x4	
General	Power input	24VDC±10%	
	Power consumption	3W typical	
	Working temperature	0 to 60˚C	
	Dimension (mm)	L-122 x W-65 x H-104	L-122 x W-65 x H-104
Page number		P.46	P.46

Motion Slave Modules

Features Models		207-M2A2-GEN
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex
	Distributed Clock	0.5 / 1 / 2 / 4 ms
	Cable type	CAT5 UTP/STP Ethernet cable
	Surge protection	10KV
	Transmission speed	100 Mbps
	CiA402 Device Profile	CSP, PP, Home
	Axis Num	2
	Pulse output mode	OUT/DIR, CW/CCW, A/B phase
	Pulse output rate	Max. 6.5Mpps
	Incremental encoder input	±EA x2 , ±EB x2
	Encoder index signal input	±EZ x2
	Encoder input mode	OUT/DIR, CW/CCW, A/B phase
	Velocity profiles	T-curve and S-curve
	Machine interface	PEL x2, MEL x2, ORG x2 and EMG
	Servo driver interface	ALM x2, RDY x2, SVON x2, INP x2 and ERC x2
	Position compare output	2 channels
	Position control	Incremental mode Absolute mode; Data range: 32 bits
	Homing mode	ORG, EZ, Limit & totally 31 types
	LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, ALM, EMG
General	Power input	24VDC±10%
	Power consumption	4W typical
	Working temperature	0 to 60˚C
	Dimension (mm)	L-122 x W-65 x H-104
Page number		P.47

207-C244C
207-C244D

4-Ch. Encoder Slave Module with Pluggable Terminal

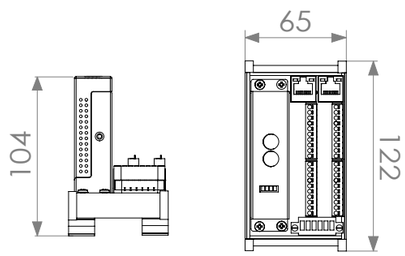
Features

- Max. 100Mbps transfer rate
- Rotary switch for address setting
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-65 x H-104 mm)
- 207-C244C : 4 DI
  4 Compare Trigger Max. 100KHz
- 207-C244D : 4DI / 4DO

Ordering information

- **207-C244C**
  4-Ch. Encoder slave module w. 4 LTC / 4 CMP
- **207-C244D**
  4-Ch. Encoder slave module w. 4 DI / 4 DO
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100Mbps
I/O isolation voltage	3750Vrms
Encoder Ch.	4-Ch. independent 32-bit counter
Encoder Input Frequency	Max. 4MHz
Digital Input	DI X 4
Digital Output	DO x 4 (C244D)
Position compare output	CMP x 4 (C244C)
Input type	Isolated
Isolated input voltage	Logic level 0: Max. 1V; Logic level 1: 5V or 24V
Incremental encoder	±EA x4, ±EB x4
Isolated digital input	IN X 4
Isolated digital output	OUT X 4
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

207-M2A2-GEN

2-Axis Motion Controller

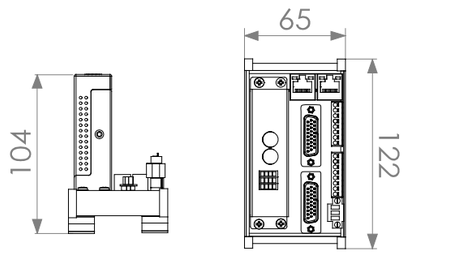
Features

- Max. 100Mbps transfer rate
- Ultra compact, a 2-axis integrated controller
- Max. 6.5MHz pulse output rate
- 32-bit counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Easy installation with RJ45 phone jack and LED diagnostic
- DIN rail mounting (L-122 x W-65 x H-104 mm)

Ordering information

- **207-M2A2-GEN**
  EtherCAT® 2-axis motion controller
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M
- **SCB-193-10A / 20A / 30A-DA2 / GEN/MJ3 / SAN / YS5 / PA5**
  DB26-SCSI 50 pin cable, 1M / 2M / 3M

Dimension Diagram

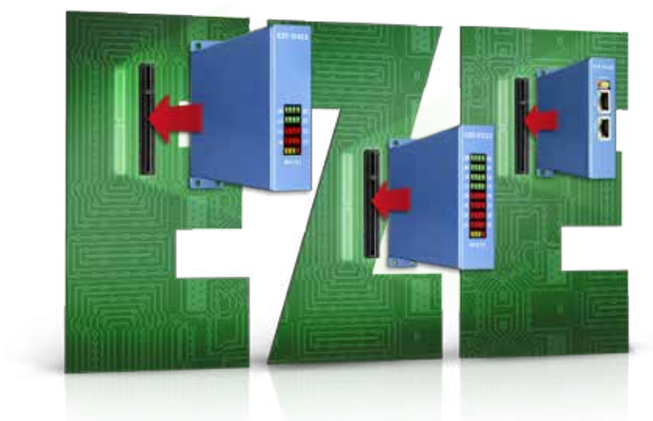


Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
Incremental encoder input	±EA x2 , ±EB x2
Encoder index signal input	±EZ x2
Machine interface	PEL x2, MEL x2, ORG x2 and EMG
Servo driver interface	ALM x2, RDY x2, SVON x2, INP x2 and ERC x2
Position compare output	CMP x 2 , Max. 100KHz
Position control	Incremental mode Absolute mode; Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, ALM, EMG
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

NOTES

Easy Plug and Play I/O



EziModule® series EtherCAT® plug-in modules: Combining the benefits of standard module and customized I/O carrier.

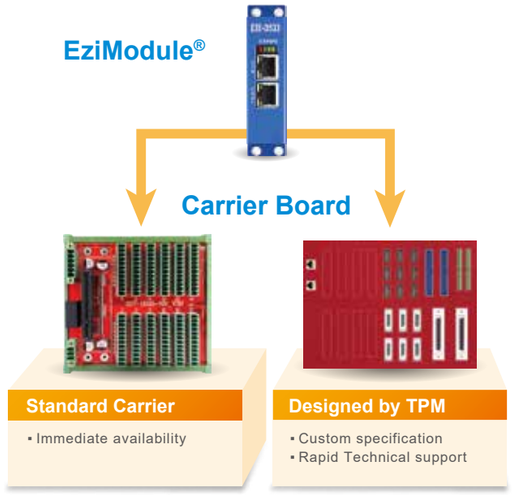
EtherCAT® plug-in modules designed by TPM offers high level flexibility in during installation. It's designed to be installed in the field near to your devices. Plug and play capabilities make EziModule® I/O a smart choice for your machine control system.

An individual wiring is switched to a distribution board which ensures dependable quality for each machine and avoids error-wiring mistakes associated with individual wiring of terminals by eliminating long, complex and expensive multi-core cable runs from field devices to your distributed control system cabinets.

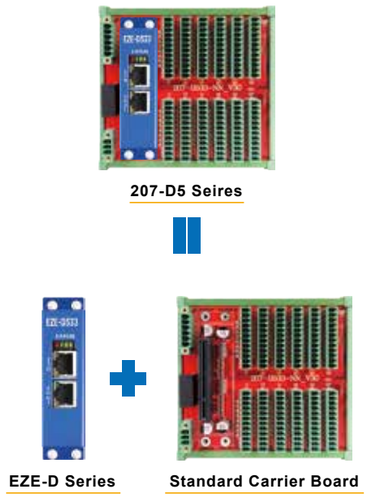
Flexible Customization

EziModule® can be mounted on a wide range of carrier boards that could be either developed by TPM or by customers with a flexible, cost effective transition from Sub-D, Ribbon Cable and other connectors to terminal blocks.

A combination of customized carrier board with a standard EziModule® I/O module (EZE-D series) offers a complete development platform with enhanced design scalability and flexibility. Designers can simply develop their custom carrier board based on the specific interface requirements and budget limits.

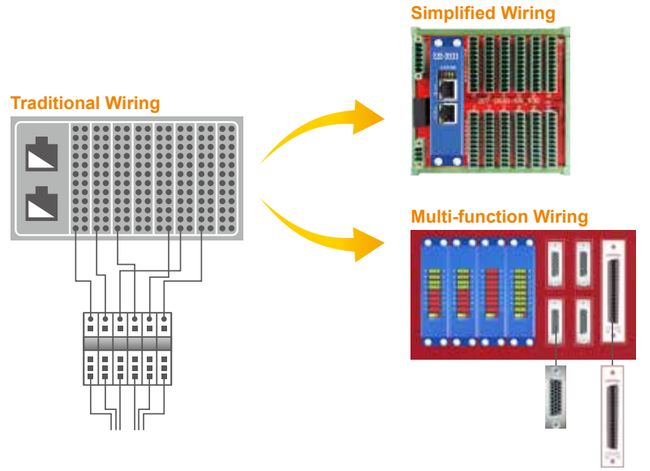


Standard Products



Advantages

TPM is able to leverage existing solutions and proven design concepts to meet unique application needs. We provide compliant solutions with significantly reduced lead time,cost and risk to our clients global wide.



- Reduced capital equipment costs
- Reduced installation time and expense
- Increased control cabinet space
- Increased process ability

Digital I/O Modules

EZE - D □ □ □

Series
EZE: EziModule Series

Slave Type
D: Digital I/O

Capacity
2: Standard Series
4: High Output Current Series
5: High-Density Series

Digital Output
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels
1: 16 Channels(D5)
2: 32 Channels(D5)
3: 48 Channels(D5)

Digital Input
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels
2: 32 Channels(D5)
3: 48 Channels(D5)
4: 64 Channels(D5)
6: 96 Channels(D5)

Model Name

EZE-D2xx Series
EZE-D4xx Series
EZE-D5xx Series

Digital I/O Modules



Features Models		EZE-D2xx Series	EZE-D4xx Series	EZE-D5xx Series
EtherCAT®	Serial interface	Fast Ethernet, Full-Duplex		
	Distributed Clock	1 ms		
	Cable type	CAT5 UTP/STP Ethernet cable		
	Surge protection	10KV		
	Transmission speed	100Mbps		
	I/O isolation voltage	3750Vrms	N/A	N/A
	Input type	NPN / PNP type	NPN / PNP type	5V TTL
	Output type	NPN / PNP type	NPN / PNP type	5V TTL
General	Power input	24VDC±10%	24VDC±10%	5VDC±10%
	Power consumption	3W typical		
	Working temperature	0 to 60˚C		
	Dimension (mm)	L-98 x W-26 x H-77	L-98 x W-26 x H-77	L-98 x W-26 x H-77
Page number		P.52	P.53	P.54

EZE-D2xx Series

32-Ch. DI/O Module

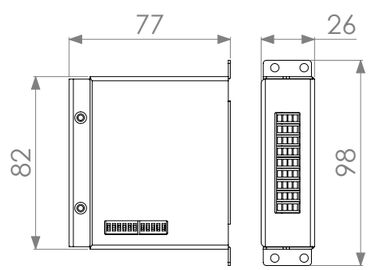
Features

- Max. 100Mbps transfer rate
- LED diagnostic
- DIP switch for address setting
- Customize PCB mounting (L-98 x W-26 x H-77 mm)

Ordering information

- **EZE-D240-NX**
  32-Ch. Digital input (DI) with NPN type
- **EZE-D204-XN**
  32-Ch. Digital output (DO) with NPN type
- **EZE-D222-NN**
  16-Ch. DI and 16-Ch. DO with NPN type
- **EZE-D240-PX**
  32-Ch. Digital input (DI) with PNP type
- **EZE-D204-XP**
  32-Ch. Digital output (DO) with PNP type
- **EZE-D222-PP**
  16-Ch. DI and 16-Ch. DO with PNP type

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN / PNP type
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max) for each port (8-Ch.)
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

EZE-D4xx Series

16-Ch. DI/O Module

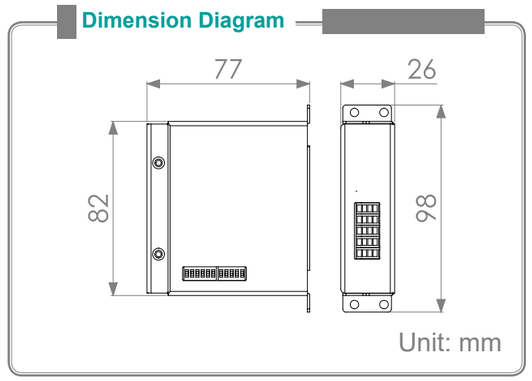
Features

- Max. 100Mbps transfer rate
- LED diagnostic
- DIP switch for address setting
- Customize PCB mounting (L-98 x W-26 x H-77 mm)

Ordering information

- **EZE-D402-XN**
  16-Ch. Digital output (DO) with NPN type
- **EZE-D411-NN**
  8-Ch. DI and 8-Ch. DO with NPN type
- **EZE-D402-XP**
  16-Ch. Digital output (DO) with PNP type
- **EZE-D411-PP**
  8-Ch. DI and 8-Ch. DO with PNP type

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN / PNP type
Response time	On to Off, about 50μs; Off to On, about 10μs
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

EZE-D5xx Series

64 / 80 / 96-Ch. DI/O Module

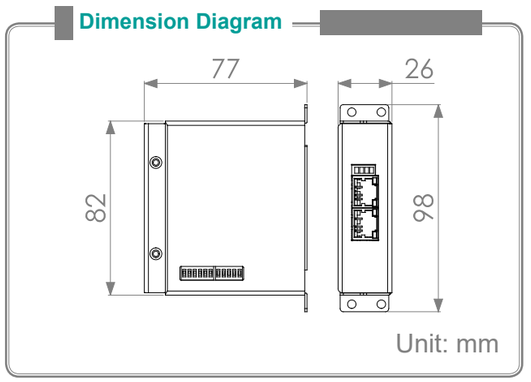
Features

- Max. 100Mbps transfer rate
- LED diagnostic
- DIP switch for address setting
- Customize PCB mounting (L-98 x W-26 x H-77 mm)

Ordering information

- **EZE-D540-NX/PX**
  64-Ch. Digital input (DI) with NPN/PNP type
- **EZE-D522-NN/PP**
  32-Ch. DI and 32-Ch. DO with NPN/PNP type
- **EZE-D550-NX/PX**
  80-Ch. Digital input (DI) with NPN/PNP type
- **EZE-D532-NN/PP**
  48-Ch. DI and 32-Ch. DO with NPN/PNP type
- **EZE-D560-NX/PX**
  96-Ch. Digital input (DI) with NPN/PNP type
- **EZE-D542-NN/PP**
  64-Ch. DI and 32-Ch. DO with NPN/PNP type
- **EZE-D533-NN/PP**
  48-Ch. DI and 48-Ch. DO with NPN/PNP type

Dimension Diagram

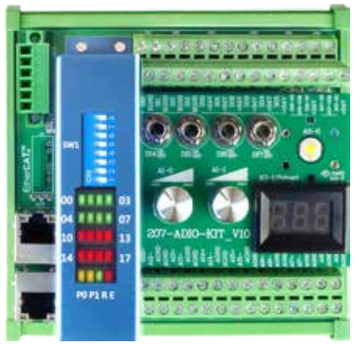


Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100Mbps
Input type	TTL
Output type	TTL
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

6-1 Start-Kits

207-ADIO-KIT



8-Ch. AI / 2-Ch. AO / 8-Ch. DI / 8-Ch. DO Slave Module

Features

- 8 Ch. Analog Input / 2 Ch. Analog Output slave module
- 8 Ch. Digital Input / 8 Ch, Digital Output slave module
- Max. 100Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Liable to do AI/O & DI/O test with toggle and rotary switch
- DIN rail mounting (L-122 x W-124 x H-104 mm)

Ordering information

- **207-ADIO-KIT**
  8-Ch. AI / 2-Ch. AO / 8-Ch. DI / 8-Ch. DO slave module with Switch / LED / Meter on-board
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms

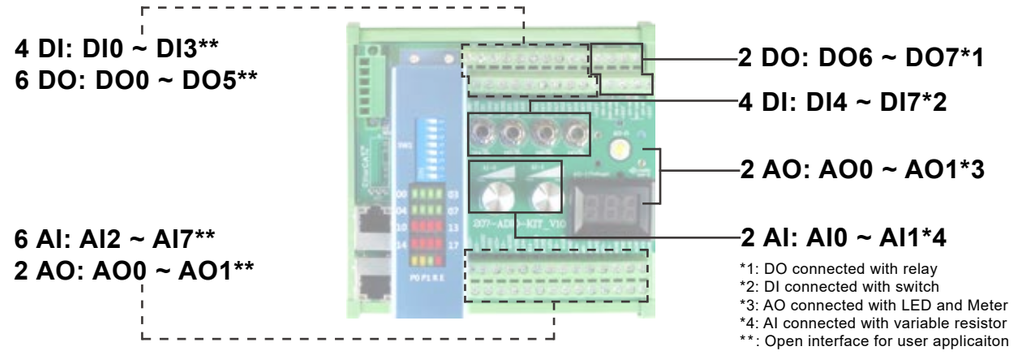
AD Converter	
Effective resolution	16 bits
Conversion time	~ 125μs
Input range	Single End: ±10 / ±5 / ±2.5 / ±1.25V; Differential: ±10 / ±5 / ±2.5 / ±1.25V
Input current	0~20mA
Number of inputs	8-channel AI

DA Converter	
Effective resolution	12 bits
Output range	±10V
Operation mode	Ramp and Noise, Single Value, Single Coupled Value, Pattern
Number of outputs	2-channel AO

DI/O Control	
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Output type	NPN open collector Darlington transistors
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	1A (Max.) for each port (8-Ch.)

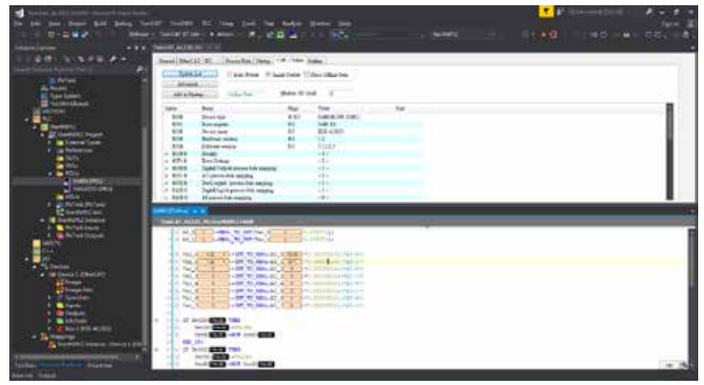
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

Illustration of Wiring



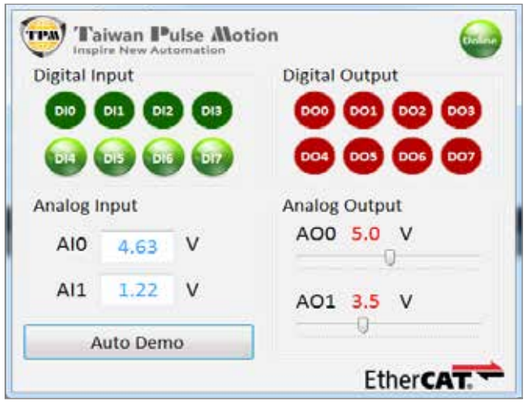
Sample Program

Sample program under TwinCAT



Demo Program

Demo program under C#



207-K221-KIT

2-Axis Motion Controller

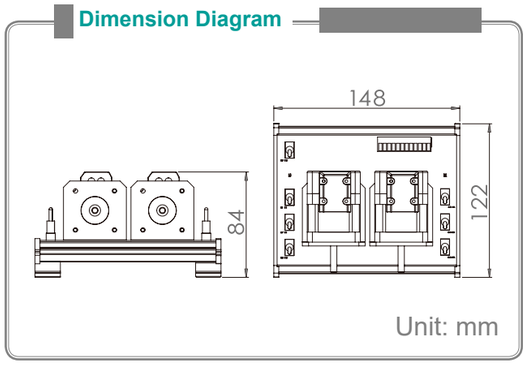
Features

- Max. 100Mbps transfer rate
- Close-Loop Control
- 2-phase bi-polar current driving system
- 2-phase motor x 2
- Max. output current 1.8A
- Resolution: 500 ~ 50,000 pulse/revolution
- Encoder feedback
- DIP switch for address setting

Ordering information

- **SVR-K221**
  EtherCAT® 2-axis, 2-phase closed-loop drive up to1.8A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®

Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
Incremental encoder input	±EA x2 , ±EB x2
Encoder index signal input	±EZ x2
MI/O input signal	PEL x2, MEL x2, ORG x2, and EMG x2
User I/O	4DI, 2DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types

Driver

Input voltage	24VDC
Drive model	2-phase, bi-polar current driving system
Resolution	4,000 pulse/ revolution depends on motor
Current setting	1.8A / axis Selected: configured by software
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG
Power consumption	3.1W typical (130mA / 24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)
Vib. resist	0.5G

207-K221-KITB

2-Axis Motion Controller

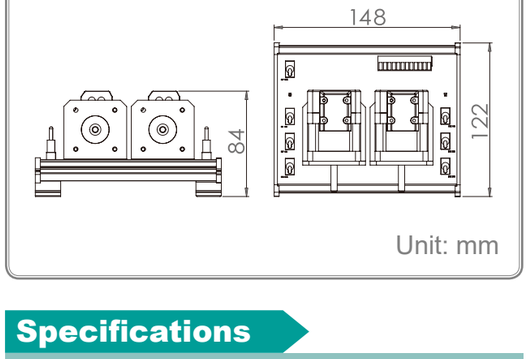
Features

- Max. 100Mbps transfer rate
- Micro-step Control
- 2-phase bi-polar current driving system
- 2-phase motor x 2
- Max. output current 1.8A
- Resolution: 500~50,000 pulse/revolution
- DIP switch for address setting

Ordering information

- **STP-K221**
  EtherCAT® 2-axis, 2-phase micro-step drive up to1.8A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

EtherCAT®

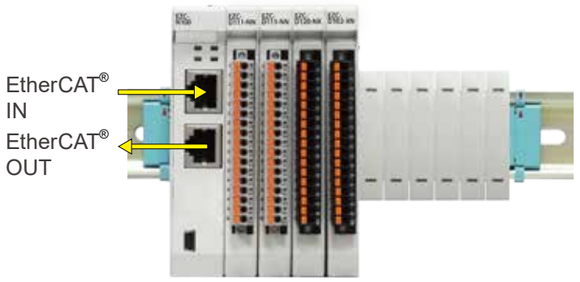
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	0.5 / 1 / 2 / 4 ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
CiA402 Device Profile	CSP, PP, Home
MI/O input signal	PEL x2, MEL x2, ORG x2, and EMG
User I/O	4DI, 2DO
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 31 types

Driver

Input voltage	24VDC
Drive model	2-phase, bi-polar current driving system
Resolution	4,000 pulse/ revolution depends on motor
Current setting	1.8A / axis Selected: configured by software
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG
Power consumption	3.1W typical (130mA/24VDC) no load
Ambient temperature	In use: 0~50˚C In storage: -20~70˚C
Humidity	IIn use: 35~85% (Noncondensing) In storage: 10~90% (Noncondensing)
Vib. resist	0.5G

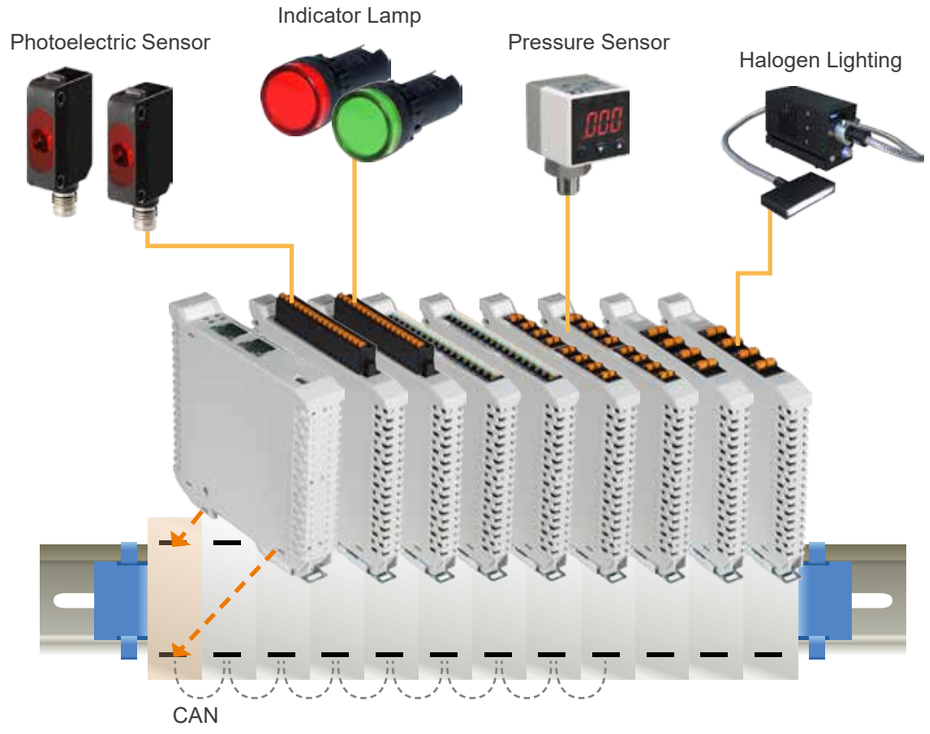
TPM EtherCAT® Add-on Terminal = CAN Coupler + Add-on Module

TPM CAN Coupler, EZC-N100, is the EtherCAT® CAN master that connects the EtherCAT® real-time Ethernet system to extendable Add-on terminal blocks at fieldbus level. This flexible system can provide high-speed, high-accuracy and low-cost remote I/O for EtherCAT®.



There are three kinds of Add-on modules:
- EZC-N100 - Coupler
- EZC-D120 - 16 Digital input
- EZC-D102 - 16 Digital output

Add-on module is the CAN Slave. With EZC-N100, the coupler can connect Max. 8 Add-on modules by CAN bus.



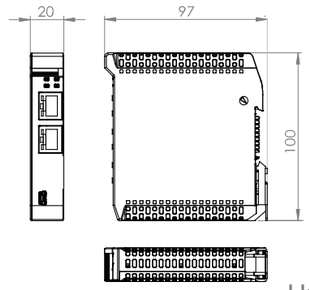
EZC-N100

Add-on Terminal Coupler

Features
- TPM EtherCAT® Coupler
- Local bus support with CAN
- Local bus support with RS-485 option
- Connected with Max. 8 add-on
- DIN rail mounting (L-97 x W-100 x H-20 mm)

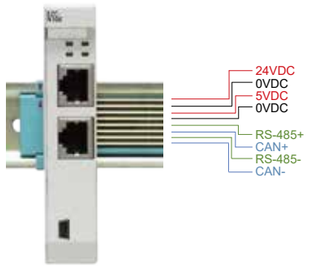
Ordering information
- **EZC-N100**
  EtherCAT® Coupler

Dimension Diagram



Unit: mm

Extension Module



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Installed modules	Max. 8 modules (with EZC-BS-010); Max. 12 modules (with EZC-BS-020)
General	
Power input	24VDC±10%
Power consumption	3W typical (Depends on installed modules)
Working temperature	0 to 60°C

EZC-D120-SX
EZC-D102-XN
EZC-D102-XP

16-Ch. DI Add-on Module

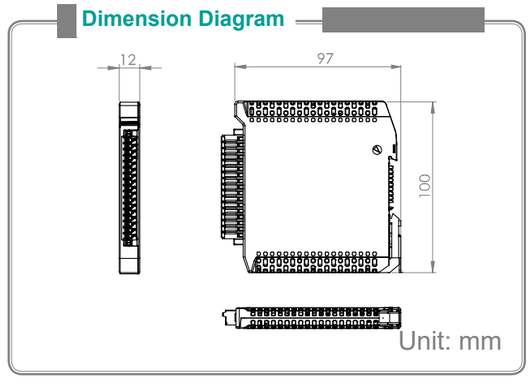
Features

- 16-Ch. DI slave module with NPN/PNP type
- TPM EtherCAT® add-on module
- Local bus support with CAN
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-97 x W-100 x H-12 mm)

Ordering information

- **EZC-D120-SX**
  16-Ch. Digital Input with NPN type or PNP type
- **EZC-D102-XN**
  16-Ch. Digital Output with NPN type
- **EZC-D102-XP**
  16-Ch. Digital Output with PNP type

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Response time	On to Off, about 50μs ; Off to On, about 10μs

General	
Power input	24VDC±10%
Power consumption	2W typical
Working temperature	0 to 60˚C

EZC-D320-SX
EZC-D302-XN
EZC-D302-XP

16-Ch. DI Add-on Module

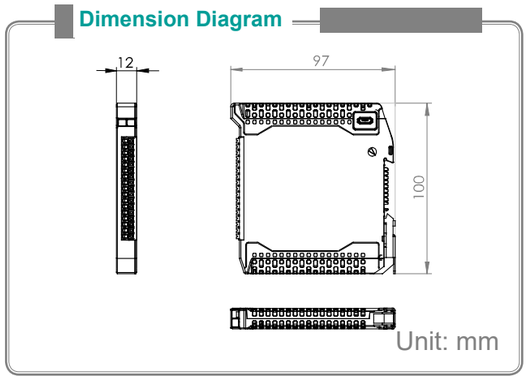
Features

- 16-Ch. DI slave module with NPN/PNP type
- TPM EtherCAT® add-on module
- Local bus support with CAN
- Unpluggable terminal block
- DIN rail mounting (L-97 x W-100 x H-12 mm)

Ordering information

- **EZC-D320-SX**
  16-Ch. Digital Input with NPN type or PNP type
- **EZC-D302-XN**
  16-Ch. Digital Output with NPN type
- **EZC-D302-XP**
  16-Ch. Digital Output with PNP type

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Input type	NPN / PNP type
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max)
Response time	On to Off, about 50μs ; Off to On, about 10μs

General	
Power input	24VDC±10%
Power consumption	2W typical
Working temperature	0 to 60˚C

EZC-A110 Series
EZC-A120 Series
EZC-A102 Series

EtherCAT® Analog Input

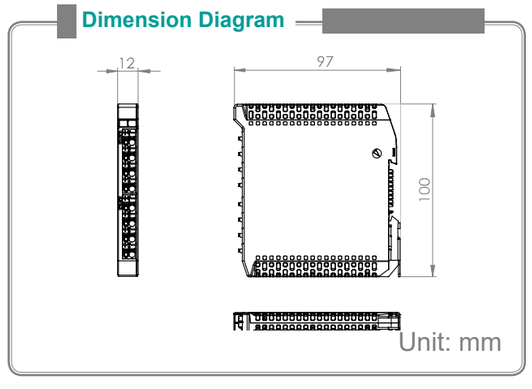
Features

- TPM EtherCAT® add-on module
- Local bus support with CAN
- Spring plug connectors
- DIN rail mounting (L-97 x W-100 x H-12 mm)

Ordering information

- **EZC-A110F**
  4-Ch. AI 16-bit Single End or Differential w. ±10V
- **EZC-A110C**
  4-Ch. AI 12-bit Single End or Differential w. ±10V
- **EZC-A120F**
  8-Ch. AI 16-bit Single End w. ±10V
- **EZC-A120C**
  8-Ch. AI 12-bit Single End w. ±10V
- **EZC-A102F**
  4-Ch. Analog output Single End w. ±10V

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
AD Converter	
Effective resolution	12 or 16 bits
Input range	±10V
DA Converter	
Effective resolution	12 or 16 bits
Output range	±10V
General	
Power input	24VDC±10%
Power consumption	2W typical
Working temperature	0 to 60˚C

EZC-C120

2-Ch. Encoder Slave Module with Pluggable Terminal

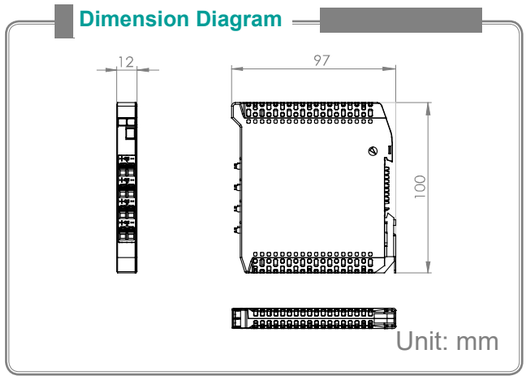
Features

- TPM EtherCAT® add-on module
- Local bus support with CAN
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-97 x W-100 x H-12 mm)

Ordering information

- **EZC-C120**
  2-Ch. Encoder slave module

Dimension Diagram



Specifications

EtherCAT®	
Serial interface	Fast Ethernet, Full-Duplex
Distributed Clock	1ms
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	100 Mbps
I/O isolation voltage	3750Vrms
Encoder Ch.	2-Ch. independent 32-bit counter
Encoder input frequency	Max. 4MHz
Input type	Isolated
Isolated input voltage	Logic level 0: Max. 1V Logic level 1: 5V or 24V
Incremental encoder	±EA x2, ±EB x2
General	
Power input	24VDC±10%
Power consumption	2W typical
Working temperature	0 to 60˚C

Motionnet®

Table of **Contents**

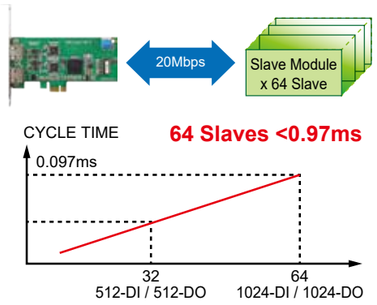
Motionnet® Features

Motionnet® is SEMI E54.21 standard and is also a high-speed serial communication system with data transfer rate at up to 20 Mbps. This technology is widely applied in factory and machinery automation industries. One Motionnet® master chip supports 64 slave devices including Digital Input/Output, Analog Input/Output, Pulse counter, Temperature and Motion control modules and its communication cycle is less than 0.97ms. Local devices with Motionnet® can be connected to a bus controlled by a center device simply through Ethernet cables. It reduces a lot of wiring complexity and cable cost. Motionnet® transfers 4 bytes of data in 15.1μsec for cyclic communication. The cyclic communication command is executed every clock cycle processing 4 bytes of the reserved memory spaces for specific commands. Others are transmitted in a communication frame.

The data change time of a specified module for both types of commands is predictable by a simple formula. Real-time data transferring is critical and time-deterministic especially for factory and machinery automation systems.

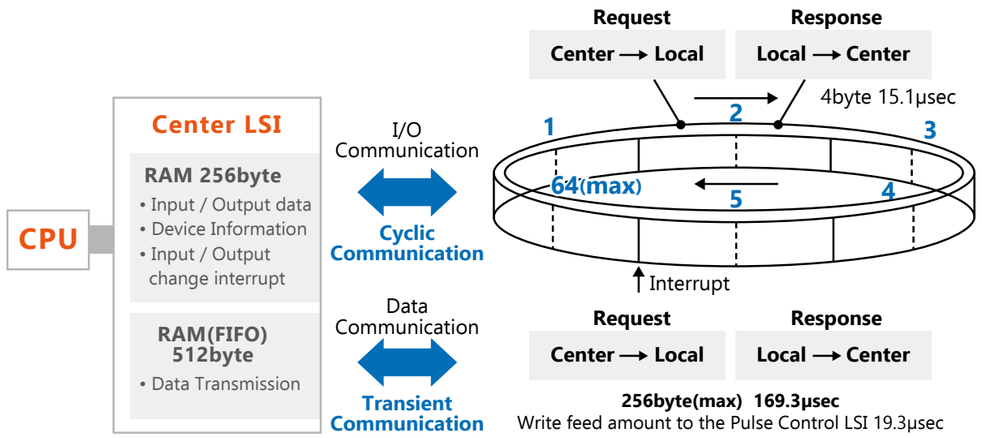
Wire-saving / Long-distance

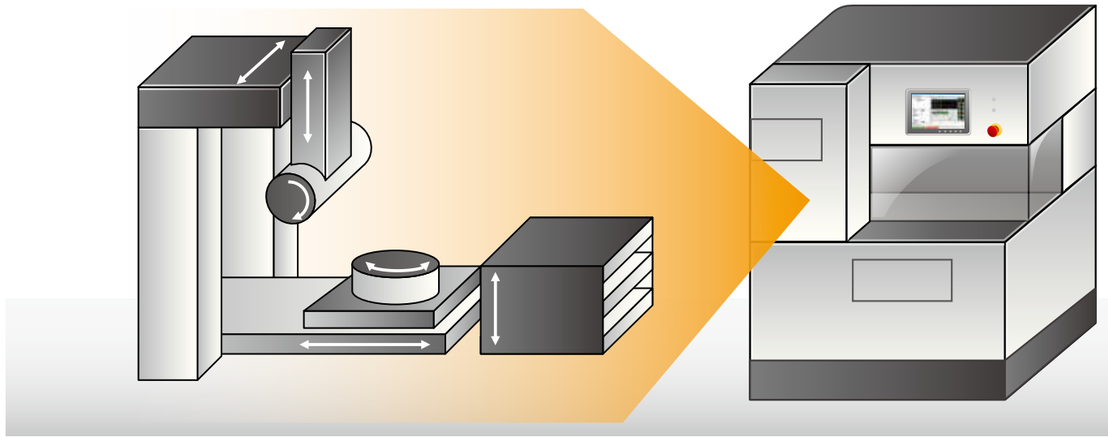
High-speed / Time-deterministic

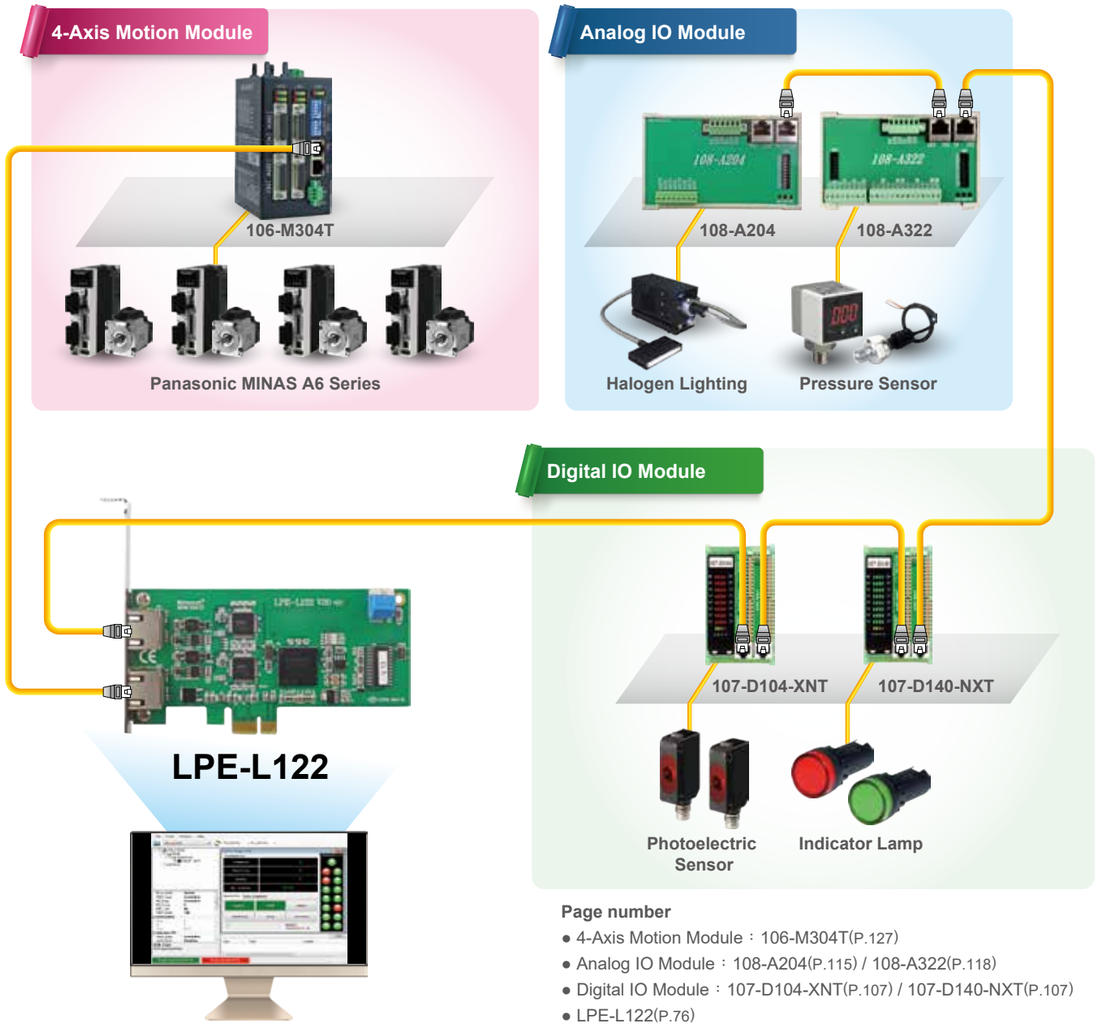


At 20Mbps, max cycle time = 15.1 x node(s) in μs

Motionnet® System Configurations







Page number

- 4-Axis Motion Module：106-M304T(P.127)
- Analog IO Module：108-A204(P.115) / 108-A322(P.118)
- Digital IO Module：107-D104-XNT(P.107) / 107-D140-NXT(P.107)
- LPE-L122(P.76)

Motion Control

□□□ - L □ □ □ - □□

Bus Standard
PCI: PCI
PCE: PCIe
LPE: Low Profile PCI Express
MPE: mini PCI Express

Card Type
L : Motionnet Master

Advanced Function
DSF: DIO
DCO: DIO & CMP

Num of Motionet
L111: 1 Motionet
L122: 2 Motionet
L123: 3 Motionet

Model Name
MPE-L111
LPE-L122
PCE-L122-DCO
PCE-L123-DCO
PCI-L122-DSF

PCIe / PCI Card



Features Models		MPE-L111	LPE-L122	PCI-L122-DSF
Bus Interface		miniPCI Express	PCI Express x1	PCI
Secure ID		-	√	√
CardID Switch		-	0 ~ 15	0 ~ 15
Motionnet Ring		1	2	2
Isolated Digital I/O		-	-	8 DI / 8 DO
Advanced Feature	Encoder Input Channel	-	-	-
	Encoder Input Mode	-	-	-
	Trigger Channel	-	-	-
	Trigger Width	-	-	-
	Trigger Table Size	-	-	-
	Trigger Rate	-	-	-
	Customized DO Frequency	-	-	-
	Position Latch	-	-	-
	Digital Input Filter	-	-	-
Form Factor		mini	Low Profile	Full-Height
Page number		P.75	P.76	P.83

□□□ - M □ □ □ - □□

Bus Standard
PCI: PCI
PCE: PCIe

Card Type
M: Motion Control

Advanced Function
GL: 1 Motionnet
GM: 2 Motionnet

Num of Axis
M114: 4-Axis
M118: 8-Axis

Model Name
PCE-M118-GL
PCE-M114-GL
PCE-M114-GM
PCI-M114-GL
PCI-M114-GM
PCI-M114-GH

PCIe / PCI Card


Features Models		PCE-L122-DCO	PCE-L123-DCO
Bus Interface		PCI Express x 1	
Secure ID		√	
CardID Switch		0 ~ 15	
Motionnet Ring		2	3
Isolated Digital I/O		4 DI / 4 DO	
Advanced Feature	Encoder Input Channel	2	
	Encoder Input Mode	CW/CCW, A/B	
	Trigger Channel	2	
	Trigger Width	√ (3μs ~ 65,535μs)	
	Trigger Table Size	2 * 1,024	
	Trigger Rate	Max. 100KHz	
	Customized DO Frequency	√	
	Position Latch	4 * 1,024	
	Digital Input Filter	√	
Form Factor		Full-Height	
Page number		P.77	P.78

PCIe / PCI Card



Features Models		PCE-M118-GL	PCE-M114-GL	PCE-M114-GM
Bus Interface		PCI Express x1		
Secure ID		√		
CardID Switch		0 ~ 15		
Motionnet Ring		1	1	2
Number of Axes		8	4	4
Pulse Output	Rate	6.5Mpps		
	Mode	OUT/DIR, CW/CCW, A/B		
	Counter	32 bits		
Encoder Input	Rate	6.5Mpps		
	Mode	CW/CCW, A/B		
	Counter	√		
Machine I/O Interface		PEL / MEL / ORG / SLD / LTC / EMG		
Servo Drive I/O	Input	ALM / RDY / INP		
	Output	SVON / ERC / ALMRST		
Isolated Digital I/O		-	3 DI / 4 DO	3 DI / 4 DO
Velocity Profiles		T-curve and S-curve		
Motion Operation	Linear Interpolation	Any 2~4 Axes		
	Circular Interpolation	Any 2 Axes		
	Helical Interpolation	√		
	Home Return Mode	13 Types		
	Continuous Moving	3 Command Buffer		
Programmable Position Compare	Trigger Channel	4	2	2
	Trigger Width	√ (3μs ~ 65,535μs)		
	Trigger Table	4 * 1,024	2 * 1,024	2 * 1,024
	Trigger Rate	Max. 100KHz		
Advanced Feature	Manual pulse generator	-	√	√
	Simultaneously Start/Stop	√		
	Customized DO Frequency	√		
	Ring Counter	√		
Motion Connector Interface		mini SCSI 100 x 2	mini SCSI 68 x 2	mini SCSI 68 x 2
Page number		P.79	P.81	P.81

PCIe / PCI Card



Features Models		PCI-M114-GL	PCI-M114-GM	PCI-M114-GH
Bus Interface		PCI		
Secure ID		√		
CardID Switch		0 ~ 15		
Motionnet Ring		1	2	2
Number of Axes		4		
Pulse Output	Rate	6.5Mpps		
	Mode	OUT/DIR, CW/CCW, A/B		
	Counter	32 bits		
Encoder Input	Rate	6.5Mpps		
	Mode	CW/CCW, A/B		
	Counter	32 bits		
Machine I/O Interface		PEL / MEL / ORG / SLD / LTC / EMG		
Servo Drive I/O	Input	ALM / RDY / INP		
	Output	SVON / ERC / ALMRST		
Isolated Digital I/O		3 DI / 4 DO	3 DI / 4 DO	3 DI / 4 DO
Velocity Profiles		T-curve and S-curve		
Motion Operation	Linear Interpolation	Any 2~4 Axes		
	Circular Interpolation	Any 2 Axes		
	Helical Interpolation	√		
	Home Return Mode	13 Types		
	Continuous Moving	3 Command Buffer		
Programmable Position Compare	Trigger Channel	2		
	Trigger Width	√ (3μs ~ 65,535μs)		
	Trigger Table	2 * 250		
	Trigger Rate	Max. 100KHz		
Advanced Feature	Manual pulse generator	-		√
	Simultaneously Start/Stop	√		
	Customized DO Frequency	√		
	Ring Counter	√		
Motion Connector Interface		mini SCSI 68 x 2		
Page number		P.85	P.87	P.89

MPE-L111

Motionnet® Master Card

Features

- mini PCI Express
- PCI Express mini Card Electromechanical Rev. 1.2
- Max. 20Mbps transfer rate
- 1 Ring of Motionnet® Master
- Max. 64 Motionnet® slave modules supported

Ordering information

- **MPE-L111**
  1-Ring Motionnet® Master card

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

Motionnet®	
Number of ring	1
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps/32 slave modules)
Communication slave module number	1 Ring with Max. 64 slaves
Form factor	mini PCI Express
General	
Bus type	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 500mA typical
Working temperature	0 to 60˚C

LPE-L122

Motionnet® Master Card

Features

- PCI Express x1 compliant
- Low profile form factor
- Max. 20Mbps transfer rate
- 2 Rings of Motionnet® Master
- Max. 128 Motionnet® slave modules supported
- Easy installation with RJ45 phone jack and LED diagnostic
- Hardware IC with unique ID

Ordering information

- **LPE-L122**
  2-Ring Motionnet® Master card

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

Motionnet®	
Number of ring	2
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps/32 slave modules)
Communication slave module number	2 Rings with Max. 128 slaves (1 Ring with 64 slaves)
Unique ID	Hardware IC
Form factor	Low profile
General	
Bus type	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

PCE-L122-DCO

Motionnet® Master Card

Features

- PCI Express x1 compliant
- Max. 20Mbps transfer rate
- 2 Rings of Motionnet® Master
- Max. 128 Motionnet® slave modules supported
- Easy installation with RJ45 phone jack and LED diagnostic
- Compare output FIFO x 2
- High Speed FIFO LATCH x 4
- General purpose isolated I/O: 4 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCE-L122-DCO**
  2-Ring Motionnet® Master card
- **104-T110-DUM**
  Extended daughter board with pluggable terminal block connectors
- **SCB-111-10A / 20A / 30A / 50A**
  SCSI 20 pin, 1M / 2M / 3M / 5M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

Motionnet®	
Number of ring	2
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps/32 slave modules)
Communication slave module number	2 Rings with Max. 128 slaves (1 Ring with 64 slaves)
Isolated digital input	IN x 4, NPN type
Isolated digital output	OUT x 4, NPN type
Unique ID	Hardware IC
Incremental encoder input	±EA x 2, ±EB x 2
Position compare output	CMP x 2, 1,024 points / ch.
Position latch input	LTC x 4, 1,024 points / ch.
General	
Bus type	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

PCE-L123-DCO

Motionnet® Master Card

Features

- PCI Express x1 compliant
- Max. 20Mbps transfer rate
- 3 Rings of Motionnet® Master
- Max. 192 Motionnet® slave modules supported
- Easy installation with RJ45 phone jack and LED diagnostic
- Compare output FIFO x 2
- High Speed FIFO LATCH x 4
- General purpose isolated I/O: 4 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCE-L123-DCO**
  3-Ring Motionnet® Master card
- **104-T110-DUM**
  Extended daughter board with pluggable terminal block connectors
- **SCB-111-10A / 20A / 30A / 50A**
  SCSI 20 pin, 1M / 2M / 3M / 5M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

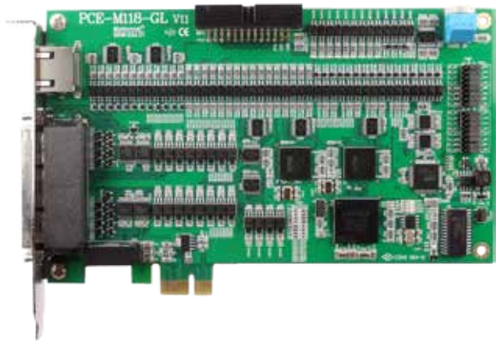
Specifications

Motionnet®	
Number of ring	3
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps/32 slave modules)
Communication slave module number	3 Rings with Max. 192 slaves(1 Ring with 64 slaves)
Isolated digital input	IN x 4, NPN type
Isolated digital output	OUT x 4, NPN type
Unique ID	Hardware IC
Incremental encoder input	±EA x 2, ±EB x 2
Position compare output	CMP x 2, 1,024 points / ch.
Position latch input	LTC x 4, 1,024 points / ch.
General	
Bus type	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

1-1 PCI Express Card

PCE-M118-GL

Motionnet® Master Card



Features

- PCI Express x1 compliant
- On-board 8-axis motion control with Max. 6.5MHz pulse output rate
- 1 Ring of Motionnet®Master
- Max. 64 Motionnet®slave modules support
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 4
- Programmable baud-rate up to 20Mbps transfer rate
- Manual pulse generator
- Hardware IC with unique ID

Ordering information

- **PCE-M118-GL**
  1-Ring Motionnet® Master card
- **107-T141-GEN**
  Terminal board for 4-axis
- **107-T142-GEN**
  Terminal board for 4-axis
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis

  SCB-186-20A
  VHDCI 100 pin + SCSI 100 pin, 2M

Specifications

Motion Control

Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 8
Position compare output	CMP x 4, 1,024 points / ch. CMP x 4
Incremental encoder input	±EA x 8, ±EB x 8
Encoder index signal input	±EZ x 8
Machine interface	PEL x 8, MEL x 8, ORG x 8, SLD x 8
Servo drive interface	ALM x 8, RDY x 8, SVON x 8, INP x 8, ERC x 8, ALMRST x 4
Emergency input	EMG x 2
I/O pin type	Optically isolated with 3750Vrms on all VHDCI 100 pin x 2

Motionnet®

Number of ring	1
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps / 32 slave modules)

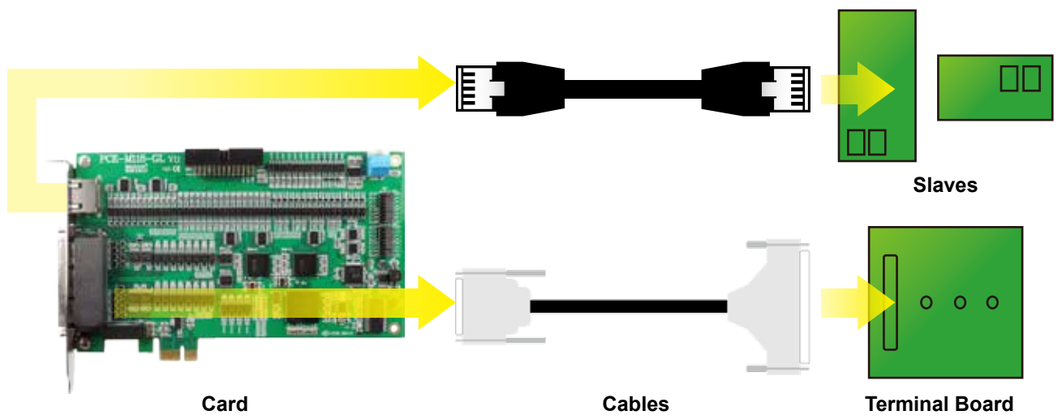
General

Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Wiring

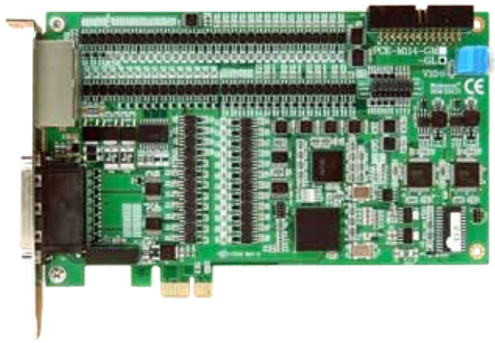


* Please see p.139 for details.

1-1 PCI Express Card

PCE-M114-GL
PCE-M114-GM

Motionnet® Master Card



Features

- PCI Express x1 compliant
- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- 1 Rings (GL) / 2 Rings (GM) of Motionnet®Master
- Max. 64 (GL) / Max. 128 (GM) Motionnet® slave modules support
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 2
- Manual pulse generator
- General purpose isolated I/O: 3 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCE-M114-GL / GM**
  1-Ring / 2-Ring Motionnet® Master card
- **107-T121-GEN**
  Terminal board for 2-axis
- **SCB-2544-20A**
  VHDCI 68 - 2 x mini SCSI 68 pin, 2M

Specifications

Motion Control

Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4
Position compare output	CMP x 2, 1,024 points / ch. CMP x 2
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all mini-SCSI 68 pin x 2
Isolated digital input	IN x 3, NPN type
Isolated digital output	OUT x 4, NPN type

Motionnet®

Number of ring	1(GL) ; 2(GM)
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps / 32 slave modules)

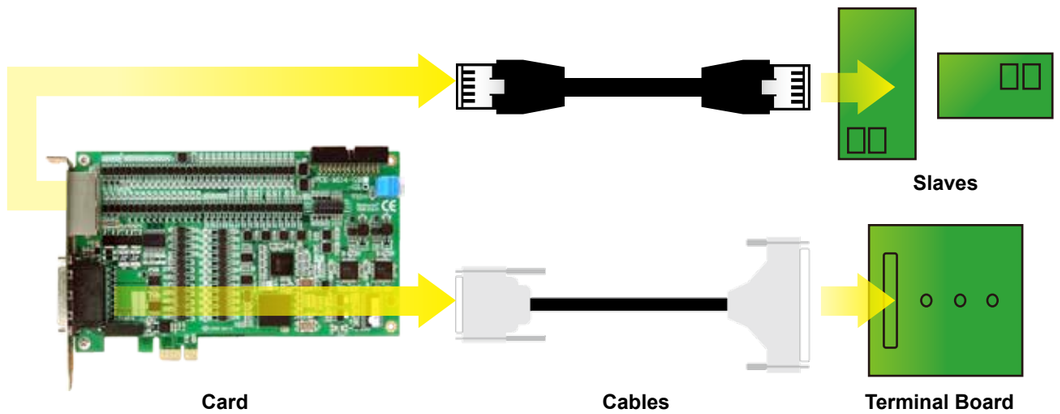
General

Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

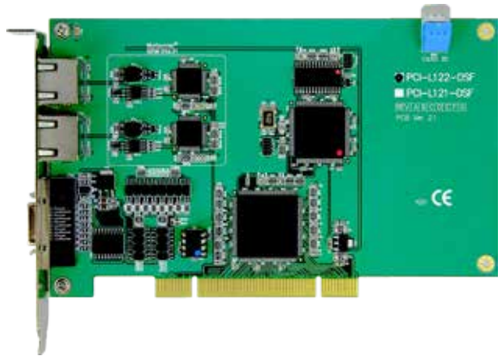
Wiring



* Please see p.140 for details.

1-2 PCI Card

PCI-L122-DSF



Motionnet® Master Card

Features

- Max. 20Mbps transfer rate
- 2 Rings of Motionnet® Master
- Max. 128 Motionnet® slave modules supported
- Easy installation with RJ45 phone jack and LED diagnostic
- General purpose isolated I/O: 8 DI and 8 DO
- Hardware IC with unique ID

Ordering information

- **PCI-L122-DSF**
  2-Ring Motionnet® Master card
- **104-T110-DUM**
  Extended daughter board with pluggable terminal block connectors
- **SCB-111-10A / 20A / 30A / 50A**
  SCSI 20 pin, 1M / 2M / 3M / 5M

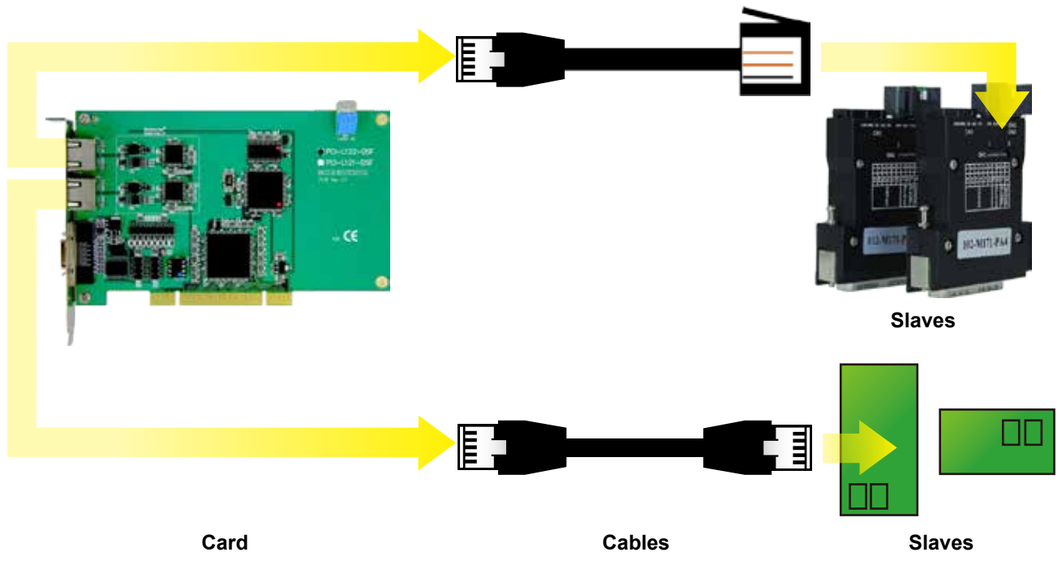
Specifications

Motionnet®	
Number of ring	2
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps/32 slave modules)
Communication slave module number	2 Rings with Max. 128 slaves (1 Ring with 64 slaves)
Isolated digital input	IN x 8, NPN/PNP type
Isolated digital output	OUT x 8, NPN type
Unique ID	Hardware IC
General	
Bus type	PCI Spec. 2.2 ; supports 32 bits
Power consumption	5VDC at 500mA typical
Working temperature	0 to 60˚C

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Wiring



* Please see p.140 for details.

1-2 PCI Card

PCI-M114-GL

4-Axis Motionnet® Card

Features

- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- 1 Ring of Motionnet®Master
- Max. 64 Motionnet®slave modules support
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 2
- Programmable baud-rate up to 20Mbps transfer rate
- General purpose isolated I/O: 3 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCI-M114-GL**
  1-Ring Motionnet® Master card
- **107-T121-GEN**
  Terminal board for 2-axis
- **SCB-2544-20A**
  VHDCI 68 - 2 x mini SCSI 68 pin, 2M

Specifications

Motion Control

Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4
Position compare output	CMP x 4
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all mini-SCSI 68 pin x 2
Isolated digital input	IN x 3, NPN type
Isolated digital output	OUT x 4, NPN type

Motionnet®

Number of ring	1
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps / 32 slave modules)

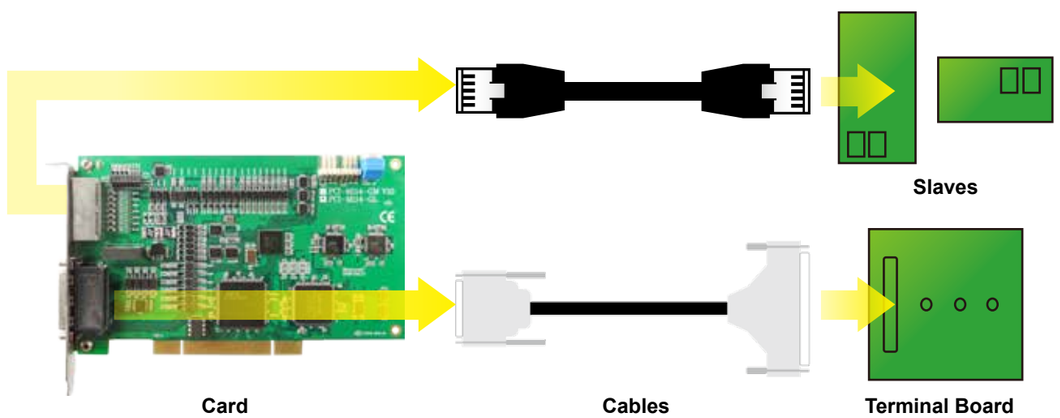
General

Specifications	PCI Spec. 2.2 ; supports 32 bits
Power consumption	5VDC at 500mA typical
Working temperature	0 to 60℃

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Wiring



* Please see p.140 for details.

1-2 PCI Card

PCI-M114-GM

4-Axis Motionnet® Card

Features

- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- 2 Rings of Motionnet®Master
- Max. 128 Motionnet®slave modules support
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 2
- Programmable baud-rate up to 20Mbps transfer rate
- General purpose isolated I/O : 3 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCI-M114-GM**
  2-Ring Motionnet® Master card
- **107-T121-GEN**
  Terminal board for 2-axis
- **SCB-2544-20A**
  VHDCI 68 - 2 x mini SCSI 68 pin, 2M

Specifications

Motion Control

Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4
Position compare output	CMP x 4
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all mini-SCSI 68 pin x 2
Isolated digital input	IN x 3, NPN type
Isolated digital output	OUT x 4, NPN type

Motionnet®

Number of ring	2
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps / 32 slave modules)

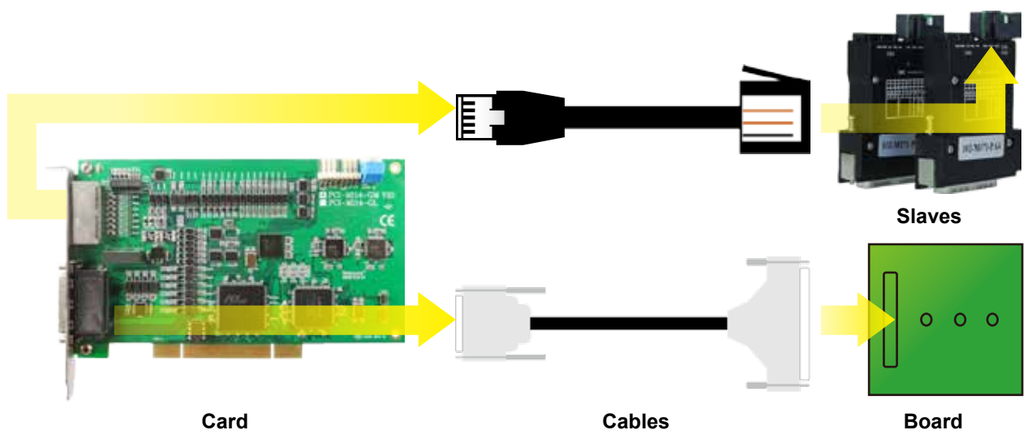
General

Specifications	PCI Spec. 2.2 ; supports 32 bits
Power consumption	5VDC at 500mA typical
Working temperature	0 to 60℃

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

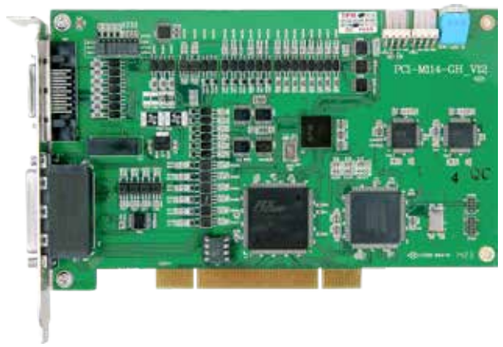
Wiring



1-2 PCI Card

PCI-M114-GH

4-Axis Motionnet® Card



Features

- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- 2 Rings of Motionnet®Master
- Max. 128 Motionnet®slave modules support
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 2
- Programmable baud-rate up to 20Mbps transfer rate
- Manual pulse generator
- General purpose isolated I/O : 3 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **PCI-M114-GH**
  2-Ring Motionnet® Master card
- **104-T120-DUM**
  Terminal board for PCI-M114-GH
- **107-T121-GEN**
  Terminal board for 2-axis

  SCB-122-10A
  SCSI 26 pin, 1M

  SCB-2544-20A
  VHDCI 68 - 2 x mini SCSI 68 pin, 2M

Specifications

Motion Control

Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4
Position compare output	CMP x 4
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all mini-SCSI 68 pin x 2
Isolated digital input	IN x 3, NPN type
Isolated digital output	OUT x 4, NPN type

Motionnet®

Number of ring	2
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Data flow control	Automatic
Communication distance	Max. 100M (20Mbps / 32 slave modules)

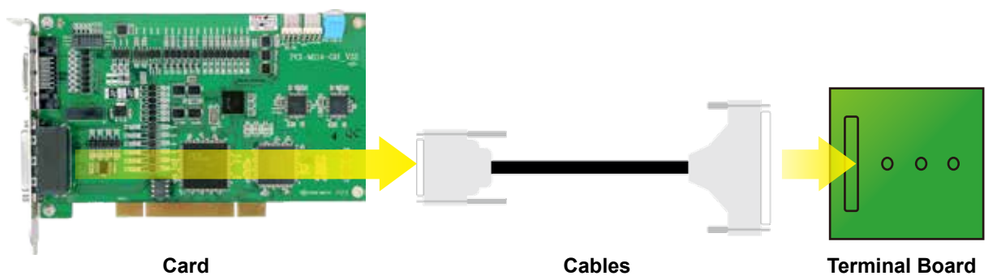
General

Specifications	PCI Spec. 2.2 ; supports 32 bit
Power consumption	5VDC at 500mA typical
Working temperature	0 to 60℃

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Wiring



Card — Cables — Terminal Board

Closed-Loop

SVR - M □ □ □

Series
SVR : Closed-Loop

Drive Series Type
K : EtherCAT
M : Motionnet

Current
1 : 1.8~2.8A
2 : 4.2A

Num of Axis
1 : 1-Axis
2 : 2-Axis

Model Name
SVR-M111
SVR-M112

Micro-Step

STP - M □ □ □

Series
STP : Micro-Step

Drive Series Type
K : EtherCAT
M : Motionnet

Current
1: 1.5A (M511)
1: 2.8A
2: 3.0A (M512)
2: 4.2A

Num of Axis
1 : 1-Axis
2 : 2-Axis

Phase
1 : 2-Phase
5 : 5-Phase

Model Name
STP-M111A
STP-M111G
STP-M112A
STP-M511
STP-M512

Closed-Loop


Features Models	SVR-M111	SVR-M112
Axis	1	1
Phase	2	2
Resolution (Max)	500 ~ 50,000	500 ~ 50,000
Motor Current (A)	2.8	4.2
Encoder	EA,EB,EZ	EA,EB,EZ
Page number	P.94	P.94

Micro-Step



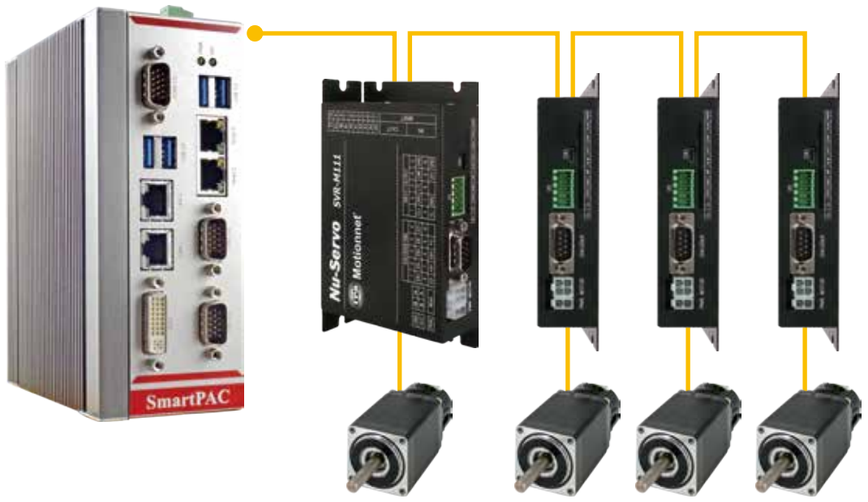
Features Models	STP-M111A	STP-M111G	STP-M112A
Axis	1	1	1
Phase	2	2	2
Micro Steps	1, 1/4, 1/16, 1/32	1, 1/4, 1/16, 1/32	1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/28, 1/256
Resolution (Max)	6,400	6,400	51,200
Motor Current (A)	2	2	5
Encoder	EA,EB,EZ	-	EA,EB,EZ
Page number	P.95	P.96	P.97

Micro-Step

NEW

NEW

Features Models	STP-M511	STP-M512
Axis	1	1
Phase	5	5
Micro Steps	1,1/2,1/5,1/10,1/25,1/50,1/125,1/250, 1/3,1/4,1/6,1/12,1/18,1/24,1/36,1/72	1,1/2,1/5,1/10,1/25,1/50,1/125,1/250, 1/3,1/4,1/6,1/12,1/18,1/24,1/36,1/72
Resolution (Max)	125,000	125,000
Motor Current (A)	1.5	3
Encoder	-	-
Page number	P.98	P.98



SVR-M111
SVR-M112

1-axis Closed-Loop

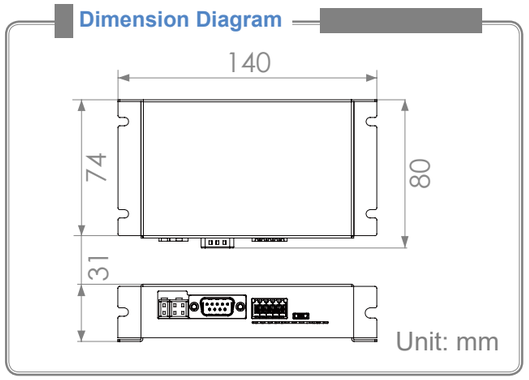
Features

- Max. 20Mbps transfer rate
- 1-axis Closed-Loop Control
- M111: Current 2.8A ; M112: Current 4.2A
- Bi-polar current driving system
- Resolution: 500~50,000 pulse/revolution
- Encoder feedback
- DIP switch for address setting
- Dimensions: L-74 x W-140 x H-31 mm

Ordering information

- **SVR-M111**
  Motionnet® 1-axis 2-phase closed-loop drive up to 2.8A
- **SVR-M112**
  Motionnet® 1-axis 2-phase closed-loop drive up to 4.2A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

Motionnet®	
Communication controller	Motionnet slave motion controller ASIC
Serial interface	RS-485 with transformer isolation
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps

Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Multi Axes Drive	Max. 32 sets/ring
I/O input signal	PEL, MEL, ORG, LTC and EMG
I/O output signal	CMP
Position control	Incremental mode / Absolute mode Data range: 28 bits
Homing mode	ORG, Z-phase, Limit Totally 13 types
Software	Motion library (DLL) for Win XP / 7 / 10
Driver	
Input voltage	24VDC
Drive model	2-phase, bi-polar current driving system
Current consumption	3.1W typical (130mA/24VDC) no load
Ambient temperature	In use: 0~50˚C (Noncondensing) In storage: 10~90% (Non-condensing)
Humidity	In use: 35~85% (Noncondensing) In storage: 10~90% (Non-condensing)
Resolution	500~50,000 pulse/revolution configured by software
Incremental encoder input	±EA, ±EB
Encoder index Signal input	±EZ
I/O input signal	PEL, MEL, ORG, and EMG
Position control	Incremental / Absolute mode Data range: 32 bits
Homing mode	ORG, EZ, Limit & totally 13 types
Vib. resist	0.5G
LED indicator	PWR, RUN, EPR, PEL, MEL, ORG, ALM, EMG
Current setting	Selected: configured by software

STP-M111A

1-Axis Motion Controller

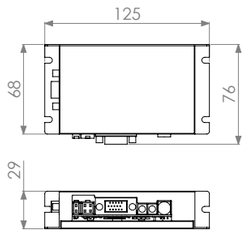
Features

- Max. 20Mbps transfer rate
- 1-axis Micro-Step Control
- M111A: Current 2.0A
- Bi-polar current driving system
- 1/32 Micro-Step
- Encoder feedback
- Dimension: L-68 x W-125 x H-29mm

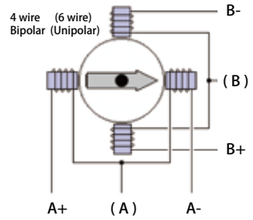
Ordering information

- **STP-M111A**
  Motionnet® 1-axis 2-phase micro-step drive up to 2.0A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Motor Wiring Diagram



Specifications

Motionnet®

Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Multi axes drive	Max. 32 sets/ring
Incremental encoder input	±EA, ±EB
Encoder index signal input	±EZ
I/O input signal	PEL, MEL, ORG, SD and EMG
I/O output signal	CMP
Position control	Incremental mode / Absolute mode; Data range: 28 bits
Homing mode	ORG, EZ, SD, Limit & totally 13 types
Software	Motion library (DLL) for Win XP / 7 / 10

Drive

Input voltage	18VDC to 36VDC
Drive model	2-phase, bi-polar current driving system
Current consumption	1.5W typical (60mA/24VDC) no load
Ambient temperature	In use: 0 ~ 50˚C ; In storage: -20 ~ 70˚C
Humidity	In use: 35 ~ 85% (Non-condensing); In storage: 10 ~ 90% (Non-condensing)
Vib. resist	0.5G
Current setting	Selected using a variable resistor (0.2 to 2A/phase)
Micro step	1, 1/4, 1/16, 1/32, selected using 2 switch
LED display	EL+, EL-, ORG, EMG, SD, FAULT, PWR
Protection functions	Connect to current sense resistor for bridge A.B = 2A

STP-M111G

1-Axis Motion Controller

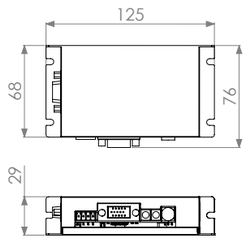
Features

- Max. 20Mbps transfer rate
- 1-axis Micro-Step Control
- M111G: Current 2.0A
- Bi-polar current driving system
- 1/32 Micro-Step
- Dimension: L-68 x W-125 x H-29mm

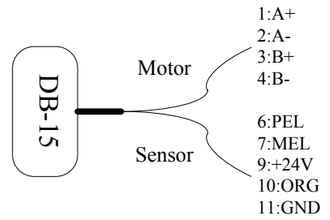
Ordering information

- **STP-M111G**
  Motionnet® 1-axis 2-phase micro-step drive up to 2.0A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Motor Wiring Diagram



Specifications

Motionnet®

Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Multi axes drive	Max. 32 sets/ring
I/O input signal	PEL, MEL, ORG, SD and EMG
I/O output signal	CMP
Position control	Incremental mode / Absolute mode; Data range: 28 bits
Homing mode	ORG, EZ, SD, Limit & totally 13 types
Software	Motion library (DLL) for Win XP / 7 / 10

Drive

Input voltage	18VDC to 36VDC
Drive model	2-phase, bi-polar current driving system
Current consumption	1.5W typical (60mA/24VDC) no load
Ambient temperature	In use: 0 ~ 50˚C ; In storage: -20 ~ 70˚C
Humidity	In use: 35 ~ 85% (Non-condensing); In storage: 10 ~ 90% (Non-condensing)
Vib. resist	0.5G
Current setting	Selected using a variable resistor (0.2 to 2A/phase)
Micro step	1, 1/4, 1/16, 1/32, selected using 2 switch
LED display	EL+, EL-, ORG, EMG, FAULT, PWR
Protection functions	Connect to current sense resistor for bridge A.B = 2A

STP-M112A

1-Axis Motion Controller

Features

- Max. 20Mbps transfer rate
- 1-axis Micro-Step Control
- M112A: Current 4.2A
- Bi-polar current driving system
- 1/256 Micro-Step
- Encoder feedback
- Dimension: L-74 x W-140 x H-29mm

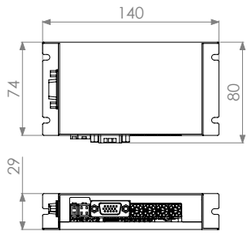
Ordering information

- **STP-M112A**
  Motionnet® 1-axis 2-phase micro-step drive up to 4.2A
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

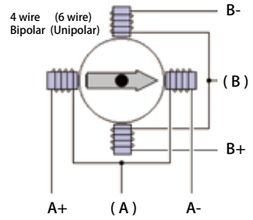
Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Multi axes drive	Max. 32 sets/ring
Incremental encoder input	±EA, ±EB
Encoder index signal input	±EZ
I/O input signal	PEL, MEL, ORG, SD and EMG
I/O output signal	CMP
Position control	Incremental mode / Absolute mode; Data range: 28 bits
Homing mode	ORG, EZ, SD, Limit & totally 13 types
Software	Motion Library (DLL) for Windows XP / XPe / 7

Dimension Diagram



Motor Wiring Diagram



Drive

Input voltage	18VDC to 36VDC
Drive model	2-phase, bi-polar current driving system
Current consumption	3.1W typical (130mA/24VDC) no load
Ambient temperature	In use: 0 ~ 50˚C ; In storage: -20 ~ 70˚C
Humidity	In use: 35 ~ 85% (Non-condensing); In storage: 10 ~ 90% (Non-condensing)
Vib. resist	0.5G
Current setting	Current: Peak 8.24A / RMS 5.83A; DECAY: 0~F; Selected: Using a variable resistor; STOP: 0~F; RUN: 0~F
Micro step	1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/28, 1/256, selected by rotary switch 0~8
LED display	OT, OTPW, S2G, EL+, EL-, ORG, EMG, SD, PWR

STP-M511 NEW
STP-M512 NEW

1-Axis Motion Controller

Features

- 5-phase Motionnet micro-step drive
- Lowest Vibration and Noise
- High positional accuracy
- Adjustable running current and stop current
- Selectable micro step
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Dimension : L-75 x W-140 x H-30mm

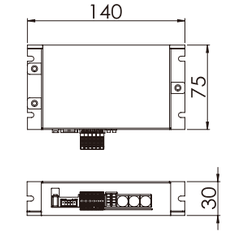
Ordering information

- **STP-M511**
  Motionnet 5-phase micro-step driver (1.5A)
- **STP-M512**
  Motionnet 5-phase micro-step driver (3.0A)

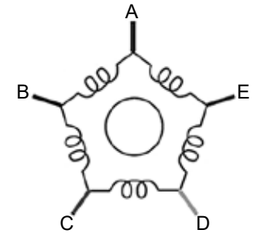
Specifications

Motionnet®	
Communication controller	Motionnet slave motion controller ASIC
Serial interface	RS-485 with transformer isolation
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Multi Axes Drive	Max. 32 sets/ring
I/O input signal	PEL, MEL, ORG, LTC and EMG
I/O output signal	CMP
Position control	Incremental mode / Absolute mode Data range: 28 bits
Homing mode	ORG, Z-phase, Limit Totally 13 types
Software	Motion library (DLL) for Win XP / 7 / 10

Dimension Diagram



Motor Wiring Diagram



Drive

Input voltage	24 or 48V DC
Drive model	5-phase
Driving current	M111: 0.5~1.5A Max / Phase M112: 0.5~3.0A Max / Phase
Driving Current Setting	RUN: 0~F by rotary switch STOP: 0~F by rotary switch
Micro-step	1, 2, 5, 10, 25, 50, 125, 250, 3, 4, 6, 12,18, 24, 36, 72 by rotary switch
LED display	EL+, EL-, ORG, EMG, INP, ALM, SVON, PWR, RUN, ERR, Current Rate
Current consumption	3.1W typical (130mA/24V) no load
Ambient Temperature	In use:0~50 °C In Storage: -20~70 °C
Humidity	In use: 35~85% (Non-condensing) In Storage: 10~90% (Non-condensing)
Vib. Reset	0.5G

Digital Slave Modules

106 - D □ □ □ - □ □ □

Series
106: 106 Series

Slave Type
D: Digital I/O

Capacity
2: Standard B-Series 32 Channels
4: Standard S-Series 32 Channels
5: Standard P-Series 16 Channels

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels

Digital Input
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels

Model Name
106-D240-NXT
106-D222-NNT
106-D204-XNT
106-D440-NXT
106-D422-NNT
106-D404-XNT
106-D520-NXT
106-D511-NNT
106-D502-XNT

Digital Slave Modules

107 - D 5 □ □ - □ □ □

Capacity
5: High-Density Series

Digital Input
0: None
3: 48 Channels
4: 64 Channels
6: 96 Channels

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
2: 32 Channels
3: 48 Channels

Model Name
107-D542-NN
107-D533-NN
107-D560-NX

107 - D □ □ □ - □ □ □

Capacity
1: Standard Series
4: High Output Current Series

Digital Input
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels
8: 64 Channels

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
1: 8 Channels
2: 16 Channels
4: 32 Channels
8: 64 Channels

Model Name
107-D140-NXT
107-D122-NNT
107-D104-XNT
107-D180-NXT
107-D108-XNT
107-D144-NNT
107-D126-NNT
107-D411H-NN
107-D402H-XN

107 - D 6 0 4 - □ □

Capacity
6: High Protection Series

Digital Input
0: None

I/O Type
N: NPN
P: PNP
X: None

Digital Output
4: 32 Channels

Model Name
107-D604-XN

Digital I/O Slave Modules



Features Models		106-D240-NXT	106-D204-XNT	106-D222-NNT
Motionnet®	Input channels	32	0	16
	Output channels	0	32	16
	Connector	Alternative Box Header		
	Dimension (mm)	L-77 x W-124 x H-51 mm		
Page number		P.105	P.105	P.105

Digital I/O Slave Modules



Features Models		106-D440-NXT	106-D404-XNT	106-D422-NNT
Motionnet®	Input channels	32	0	16
	Output channels	0	32	16
	Connector	Screw Terminal Block		
	Dimension (mm)	L-77 x W-124 x H-41 mm		
Page number		P.104	P.104	P.104

Digital I/O Slave Modules



Features Models		106-D520-NXT	106-D502-XNT	106-D511-NNT
Motionnet®	Input channels	16	0	8
	Output channels	0	16	8
	Connector	Pluggable Terminal Block		
	Dimension (mm)	L-77 x W-69 x H-41 mm		
Page number		P.106	P.106	P.106

Digital I/O Slave Modules



Features Models		107-D140-NXT	107-D104-XNT	107-D122-NNT
Motionnet®	Input channels	32	0	16
	Output channels	0	32	16
	Connector	Pluggable Terminal Block		
	Dimension (mm)	L-122 x W-66 x H-104 mm		
Page number		P.107	P.107	P.107

Digital I/O Slave Modules



Features Models		107-D180-NXT	107-D108-XNT	107-D144-NNT
Motionnet®	Input channels	64	0	32
	Output channels	0	64	32
	Connector	Pluggable Terminal Block		
	Dimension (mm)	L-122 x W-122 x H-104 mm		
Page number		P.108	P.108	P.108

Digital I/O Slave Modules



Features Models		107-D402H-XN	107-D411H-NN	107-D604-XN
Motionnet®	Input channels	0	8	32
	Output channels	16	8	0
	Connector	Pluggable Terminal Block		
	Dimension (mm)	L-122 x W-66 x H-104 mm		
Page number		P.110	P.109	P.112

Digital I/O Slave Modules



Features Models		107-D533-NN	107-D560-NN	107-D542-NN
Motionnet®	Input channels	48	96	64
	Output channels	48	0	32
	Connector	Pluggable Terminal Block		
	Dimension (mm)	L-122 x W-125 x H-77 mm		
Page number		P.111	P.111	P.111

106-D4xx Series

32-Ch. DI/O Slave Module

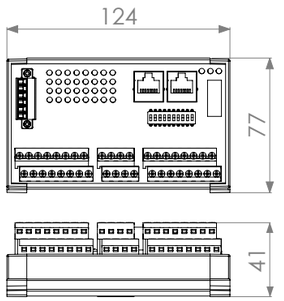
Features

- 32-Ch. Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- DIN rail mounting (L-77 x W-124 x H-41 mm)
- 106-D4xx Series: Screw Terminal Block

Ordering information

- **106-D440-NXT**
  32-Ch. Digital input
- **106-D422-NNT**
  16-Ch. Digital input and 16-Ch. Digital output
- **106-D404-XNT**
  32-Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

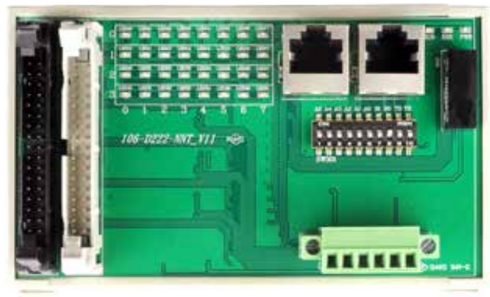
Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8 Ch.)
General	
Power input	24VDC±10%
Power consumption	1.5W typical
Working temperature	0 to 60˚C

106-D2xx Series



32-Ch. DI/O Slave Module

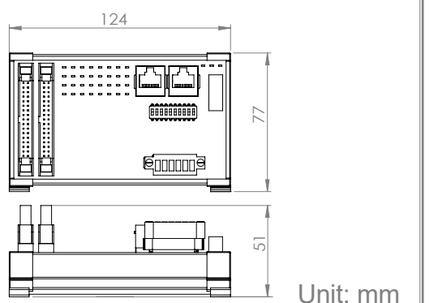
Features

- 32-Ch. Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- DIN rail mounting (L-77 x W-124 x H-51 mm)
- 106-D2xx Series: Alternative 34-pin Box Header

Ordering information

- **106-D240-NXT**
  32-Ch. Digital input
- **106-D222-NNT**
  16-Ch. Digital input and 16-Ch. Digital output
- **106-D204-XNT**
  32-Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8 Ch.)
General	
Power input	24VDC±10%
Power consumption	1.5W typical
Working temperature	0 to 60˚C

106-D5xx Series

16-Ch. DI/O Slave Module

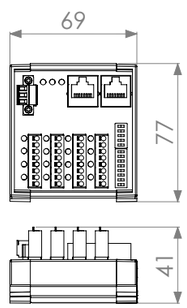
Features

- 16-Channel Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-77 x W-69 x H-41 mm)

Ordering information

- **106-D520-NXT**
  16-Ch. Digital input
- **106-D511-NNT**
  8-Ch. Digital input / 8-Ch. Digital output
- **106-D502-XNT**
  16-Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

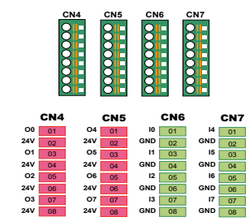
Dimension Diagram



Specifications

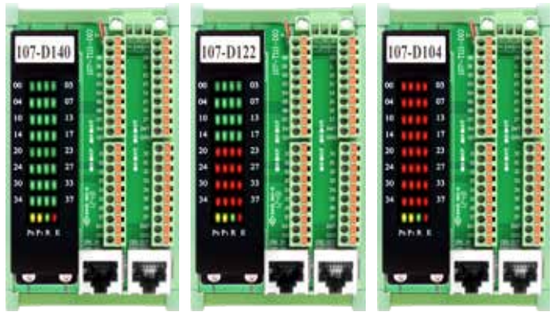
Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8 Ch.)
General	
Power input	24VDC±10%
Power consumption	1.5W typical
Working temperature	0 to 60˚C

I/O connector



106-D511-NN Terminal Definitions

107-D1xx Series (32)



32-Ch. DI/O Slave Module with Pluggable Terminal

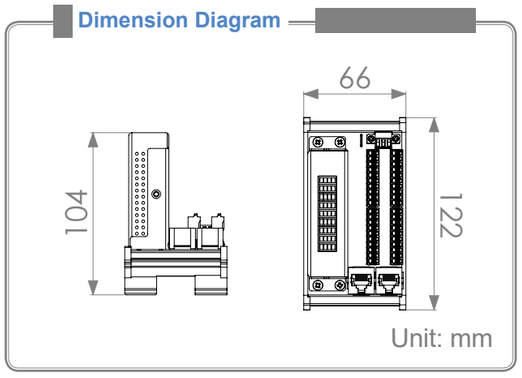
Features

- 32-Ch. Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnostic
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **107-D140-NXT**
  32-Ch. Digital input
- **107-D122-NNT**
  16-Ch. Digital input / 16-Ch. Digital output
- **107-D104-XNT**
  32 Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

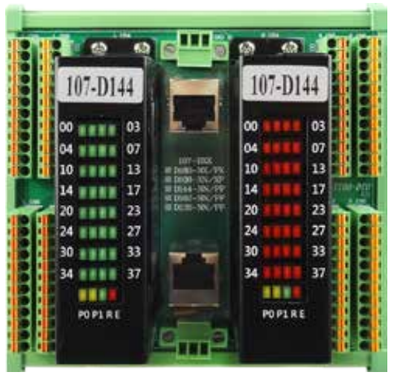
Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8 Ch.)
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

107-D1xx Series (64)



64-Ch. DI/O Slave Module with Pluggable Terminal

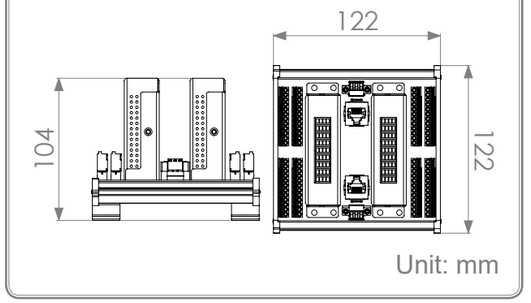
Features

- 64-Ch. Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-122 x H-104 mm)

Ordering information

- **107-D180-NXT**
  64-Ch. Digital input
- **107-D108-XNT**
  64-Ch. Digital output
- **107-D144-NNT**
  32-Ch. Digital intput / 32-Ch. Digital output
- **107-D162-NNT**
  48-Ch. Digital input / 16-Ch. Digital output
- **107-D126-NNT**
  16-Ch. Digital input / 48-Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8-Ch.)
General	
Power input	24VDC±10%
Power consumption	8W typical
Working temperature	0 to 60˚C

107-D411H-NN

16-Ch. DI/O Slave Module

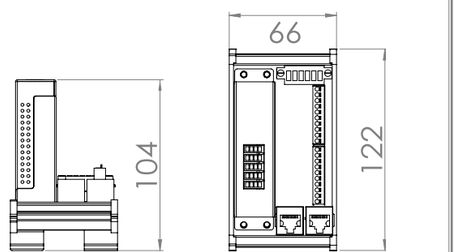
Features

- 16-Ch. Motionnet® High current Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **107-D411H-NN**
  16-Ch. DI/O Slave Module
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Digital Input	8 channels
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Digital Output	8 channels
Output types	Open drain MOSFET-N Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 500mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	4A (max) for each port (8-Ch)
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

107-D402H-XN

16-Ch. DI/O Slave Module

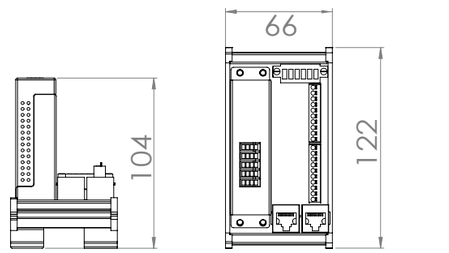
Features

- 16-Ch. Motionnet® High current Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **107-D402H-XN**
  16-Ch. DI/O Slave Module
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Digital Output	16 channels
Output types	Open drain MOSFET-N Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 500mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	4A (max) for each port (8-Ch)
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

107-D5xx Series

96-Ch. DI/O Slave Module with Pluggable Terminal

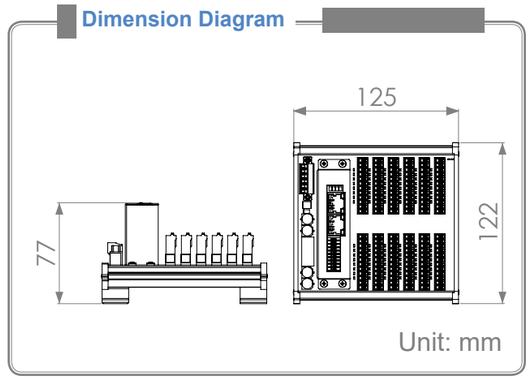
Features

- 96-Ch. Motionnet® Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-125 x H-77 mm)

Ordering information

- **107-D542-NN**
  64-Ch. Digital input / 32-Ch. Digital output
- **107-D533-NN**
  48-Ch. Digital input / 48-Ch. Digital output
- **107-D560-NX**
  96-Ch. Digital input
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

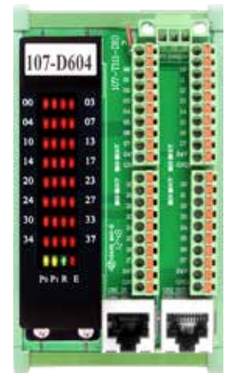
Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA (Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8-Ch.)
General	
Power input	9VDC to 36VDC
Power consumption	6W typical
Working temperature	0 to 60˚C

107-D604-XN



32-Ch. Protection Digital I/O slave modules

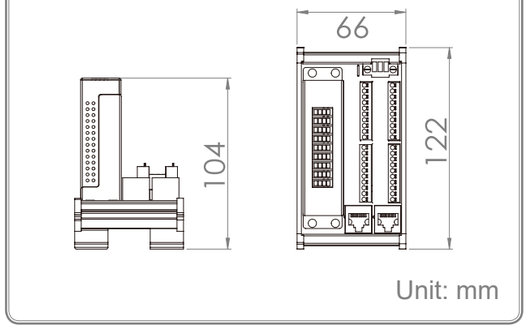
Features

- 32-Ch. Motionnet® Short Circuit Protection Digital I/O slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Pluggable terminal block with spring plug connectors
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **107-D604-XN**
  32 Ch. Digital output

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Digital Output	32 channels
Output types	Open drain MOSFET-N Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 500mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	4A (max) for each port (8-Ch)
Over voltage Protection	42V
Short Circuit Protection	Yes
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

Analog Slave Modules

108 - A 2 □ □

Series
108: 108 Series

Slave Type
A: Analog I/O

Analog Output
0: None
2: 4 Channels
4: 4 Channels

Analog Input
0: None
2: 8 Channels
8: 8 Channels

Model Name
108-A204
106-A180A
108-A222
108-A322

Analog I/O Slave Modules

Features Models		108-A204	106-A180A
Motionnet®	AD Input channels	0	8
	AD Effective resolution	-	16 bits
	AD Input range	-	±10V, ±5V, ±2.5V,±1.25V
	DA Output channels	4	-
	DA Effective resolution	16 bits	-
	DA Output range	±10V	-
	Dimension (mm)	L-77 x W-124 x H-34 mm	L-77 x W-124 x H-32 mm
Page number		P.115	P.116

NEW

Analog I/O Slave Modules

Features Models		108-A222	108-A322
Motionnet®	AD Input channels	8	8
	AD Effective resolution	12 bits	16 bits
	AD Input range	0~10V, 4~20mA	±10V, ±5V, 0~10V,0~5V,0~20mA
	DA Output channels	4	4
	DA Effective resolution	12 bits	16 bits
	DA Output range	0~10V	±10V, ±5V, 0~10V,0~5V,0~20mA
	Dimension (mm)	L-77 x W-124 x H-34 mm	L-77 x W-124 x H-38 mm
Page number		P.117	P.118

108-A204

4-Ch. AO Slave Module

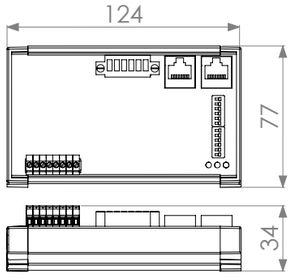
Features

- 4-Ch. Analog Output Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Connectors with screw terminal block
- DIN rail mounting (L-77 x W-124 x H-34 mm)

Ordering information

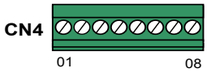
- **108-A204**
  4-Ch. Analog output (±10V)
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



Unit: mm

Terminal Assignment



AOUT_0	01
AGND	02
AOUT_1	03
AGND	04
AOUT_2	05
AGND	06
AOUT_3	07
AGND	08

CN4

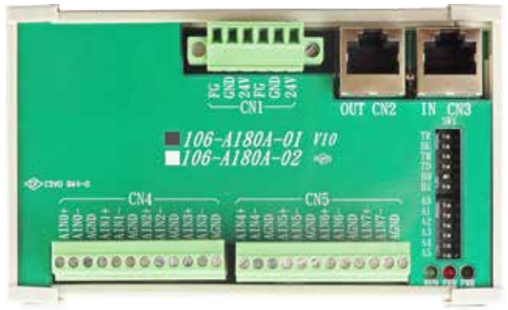
Terminal Definitions (CN4)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
DAC Converter	
Effective resolution	16 bits
Output impedance	0.3Ω
Output range	±10V
Accuracy	±4LBS(INL) / ±1LBS(DNL)
Short-circuit protection current	6mA
Zero Drift	±2ppm/˚C
Span Drift	25ppm/˚C
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

106-A180A

8-Ch. AI Slave Module



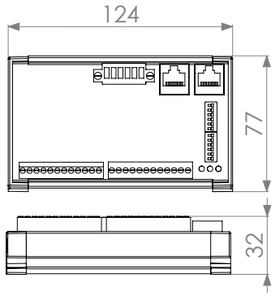
Features

- 8-Ch. Analog Input Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Connectors with screw terminal block
- DIN rail mounting (L-77 x W-124 x H-32 mm)

Ordering information

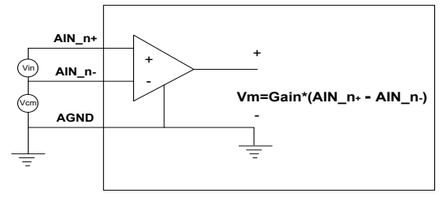
- **106-A180A**
  8-Ch. Analog input(±10V, ±5V, ±2.5V, ±1.25V)
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



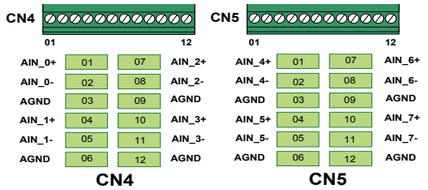
Unit: mm

Signal Wiring Diagram



Analog Input Signals

Terminal Assignment



CN4 CN5

Terminal Definitions (CN4,CN5)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
ADC Converter	
Effective resolution	16 bits
Input impedance	20MΩ
Input range	Standard ±10V, ±5V, ±2.5V,±1.25V (106-A180A-01)
Sample rate	Programmable, 1/(1~255) ms; samples/sec.
Fault and over-voltage protection	Up to ±25V
Accuracy	0.1% or better
Zero Drift	±3uV/˚C
Span Drift	25ppm/˚C
CMR@50/60Hz	92dB
General	
Power input	18VDC to 36VDC
Power consumption	1.5W typical
Working temperature	0 to 60˚C

108-A222

8-Ch. Analog input and 4-Ch. Analog output Slave Module

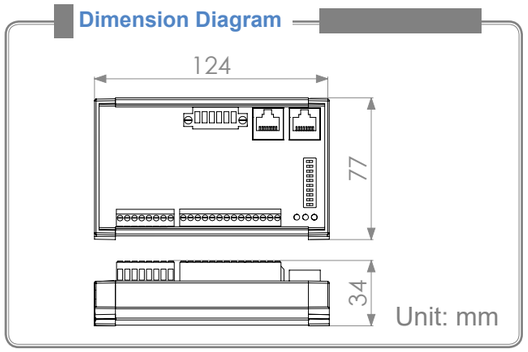
Features

- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Connectors with screw terminal block
- DIN rail mounting (L-77 x W-124 x H-34 mm)

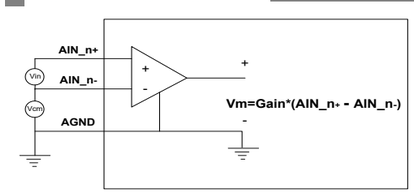
Ordering information

- **108-A222**
  8-Ch. Analog input / 4-Ch. Analog output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram

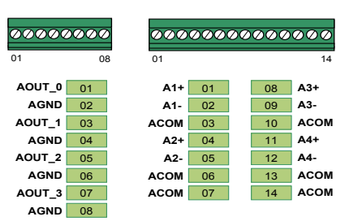


Signal Wiring Diagram



Analog Input Signals

Terminal Assignment



Terminal Definitions (CN4,CN5)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
DAC Converter	
Effective resolution	12 bits
Input impedance	20MΩ
Input range	0~10V, 4~20mA
Output impedance	0.3Ω
Output range	0~10V
Sample rate	10ms/ch.
Fault and over-voltage protection	Up to ±12V
Accuracy	±2LBS(INL) / ±0.2LBS(DNL)
Zero Drift (ADC)	±0.2uV/˚C
Span Drift (ADC)	±0.5ppm/˚C
Zero Drift (DAC)	-0.5ppm/˚C (25˚C ~125˚C)
Span Drift (DAC)	-3ppm/˚C
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

108-A322 NEW

8-Ch. Analog input and 4-Ch. Analog output Slave Module

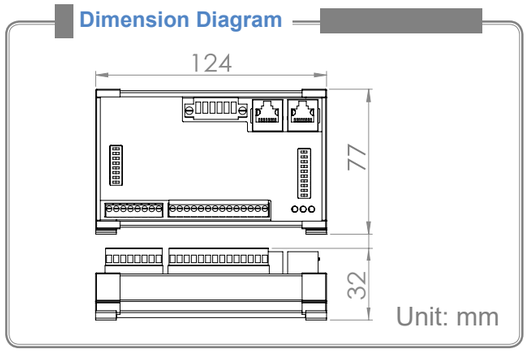
Features

- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Connectors with screw terminal block
- DIN rail mounting (L-77 x W-124 x H-38 mm)

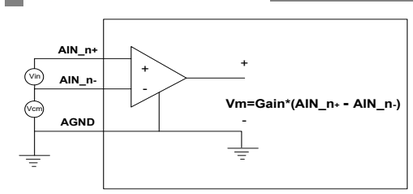
Ordering information

- **108-A322**
  8-Ch. Analog input / 4-Ch. Analog output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram

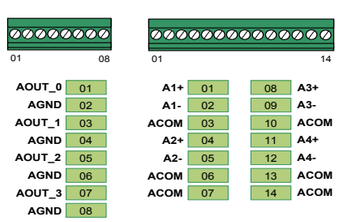


Signal Wiring Diagram



Analog Input Signals

Terminal Assignment



Terminal Definitions (CN4,CN5)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
DAC Converter	
Effective resolution	16 bits
Input impedance	20MΩ
Input range	±10V, ±5V, 0~10V, 0~5V, 0~20mA
Output impedance	0.3Ω
Output range	±10V, ±5V, 0~10V, 0~5V, 0~20mA
Accuracy	AI: ±0.2% / AO : ±0.2%
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

108-T140

8-Ch. Temperature Slave Module for Thermocouple

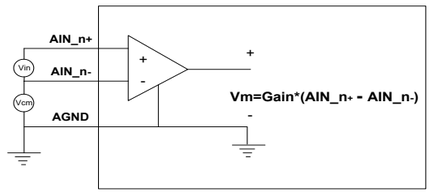
Features

- 8-Ch. Analog Input Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Connectors with screw terminal block
- DIN rail mounting (L-77 x W-124 x H-32 mm)

Ordering information

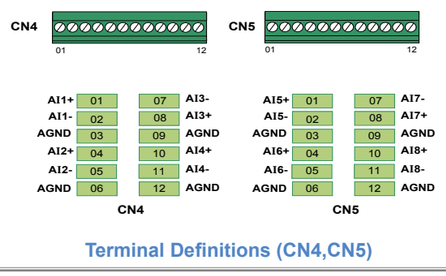
- **108-T140**
  8-Ch. termperature slave module for thermocouple
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Signal Wiring Diagram



Analog Input Signals

Terminal Assignment



Terminal Definitions (CN4,CN5)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
ADC Converter	
Input Ch.	8-Ch. differential
Input type	4 ~ 20mA with switchable resistor (No need external resistor);Thermocouple type: E, J, K, T
Effective resolution	16 bits
Input impedance	20MΩ
Sample rate	Low speed: 5Hz / 8-ch.; High speed: 50Hz / 8-ch.
Fault and over-voltage protection	Up to ±12V
Accuracy	0.1% or better
Photo-isolation	3750Vrms
Intra-module isolation, field to logic	3000VDC
CMR@50/60Hz	110dB
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

NOTES

Motion Control Slave Modules

□□□ - M □ □ □ - GEN

Series
102: 102 Series
106: 106 Series
107: 107 Series

Slave Type
M: Motion Control

Connection Type
GEN: General Type

Num of Axis
2: 2-Axis
3: 3-Axis
4: 4-Axis

Motion Core
1: 1-Axis ASIC
2: 1-Axis ASIC Multiple
3: 4-Axis ASIC
4: ARM

Model Name
102-M1C1-GEN
102-M1x1 Series
107-M2A2-GEN
107-M2C3-GEN
107-M4A2-GEN
106-M304T

Pulse Slave Modules

108 - C 1 4 4

Series
108: 108 Series

Slave Type
C: Encoder
P: Counter

Input Channel
4: 4 Channels

Model Name
108-P144
108-C144

102-M1C1-GEN

1-Axis Motion Controller

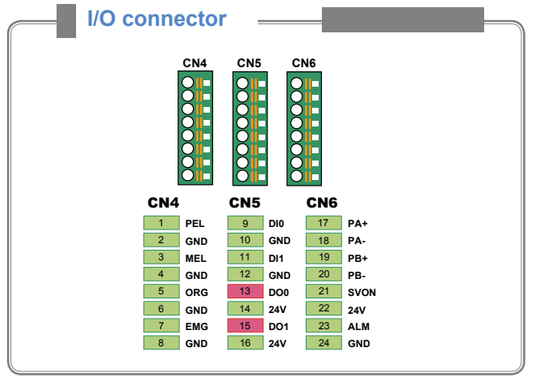
Features

- 1-axis Motion Controller Motionnet® slave modules wo. encoder
- Max. 20Mbps transfer rate
- Max. 6.5MHz, 1-axis pulse output rate
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed/position on-the-fly
- General purpose isolated I/O: 2 DI and 2 DO
- Easy installation with RJ45 phone jack and LED diagnostic
- DIN rail mounting (L-77 x W-69 x H-44 mm)

Ordering information

- **102-M1C1-GEN**
  1-axis motion slave module for General purpose wo.encoder
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

I/O connector



Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Motion	
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	13 types
Velocity profile	T-curve and S-curve
Machine interface	PEL, MEL and ORG
Servo drive interface	ALM, SVON
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG, SVON and ALM
Isolated digital I/O	2 DI / 2 DO
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

102-M1x1 Series

1-Axis Motion Connector

Features

- 1-Axis Motion Connector
- Max. 20Mbps transfer rate
- Max. 6.5MHz pulse output rate
- 28-bit counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed/position on–the-fly
- Easy installation for servo or stepping motor driver
- Dimensions: L-79 x W-53 x H-17mm

Ordering information

- **102-M121-DA2(B)-NE**
  1-axis motion slave module for Delta A2/3 series servo driver
- **102-M131-MJ4(B)-NE**
  1-axis motion slave module for Mitsubishi J3/4 series servo driver
- **102-M141-YS5(B)-NE**
  1-axis motion slave module for Yaskawa sigma II/V servo driver
- **102-M171-PA4 (B)-NE**
  1-axis motion slave module for Panasonic A4/5/6 series servo driver
- **102-M151-SAN-NE**
  1-axis motion slave module for Sanyo Q/R series servo driver
- **102-M191-TAR-NE**
  1-axis motion slave module for Oriental α series stepping driver
- **102-M1A1-GEN-NE**
  1-axis motion slave module for General purpose
- **102-T1A1-HDB / DUM**
  Terminal board for 1-axis motion connector
- **102-M101-DUM**
  Terminal board for machine I/O
- **3M E-CON**
  3-Pin connector of 3M E-CON for Motionnet®

Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Motion	
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	13 types
Velocity profile	T-curve and S-curve
Counter for encoder feedback signals	28 bits
Position compare output	CMP
Incremental encoder input	±EA, ±EB
Encoder index signal input	±EZ
Machine interface	PEL, MEL, ORG and EMG
Servo drive interface	ALM, RDY, SVON, INP and ERC
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG and EMG
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

107-M2A2-GEN

2-axis Motion Controller

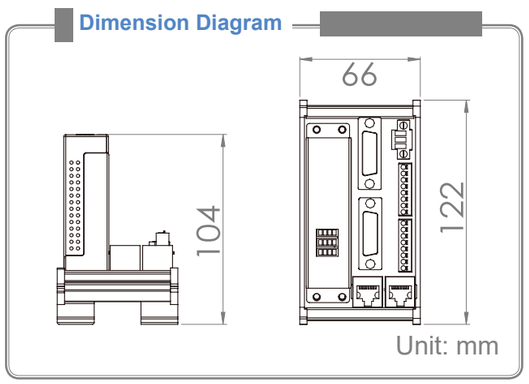
Features

- Max. 20Mbps transfer rate
- Ultra compact, a 2-axis integrated controller
- Max. 6.5MHz pulse output rate
- 28-bit counter for incremental encoder
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Easy installation with RJ45 phone jack and LED diagnostic
- DIN rail mounting (L-122 x W-66 x H-104 mm)

Ordering information

- **107-M2A2-GEN**
  Motionnet® 2-axis motion controller
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M
- **SCB-193-10A / 20A / 30A-DA2 / GEN/MJ3 / SAN / YS5 / PA5**
  DB26-SCSI 50 pin cable, 1M/2M/3M

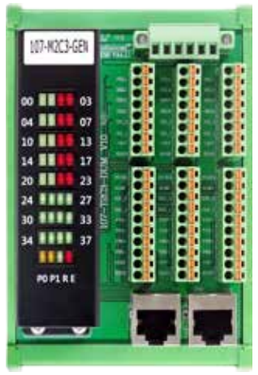
Dimension Diagram



Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	13 types
Velocity profile	T-curve and S-curve
Counter for encoder feedback signals	28 bits
Position compare output	CMP
Incremental encoder input	±EA x2, ±EB x2
Encoder index signal input	±EZ x2
Machine interface	PEL x2, MELx2, ORG x2, SLD x2, and EMG x2
Servo drive interface	ALM x2, RDY x2, SVON x2, INP x2 and ERC x2
LED indicator	PWR, RUN, ERR, PEL x2, MEL x2, ORG x2, EMG x2
General	
Power input	24VDC±10%
Power consumption	5W typical
Working temperature	0 to 60˚C

107-M2C3-GEN



3-axis Motion Controller

Features

- Motionnet® 3-axis slave modules wo. encoder
- Max. 20Mbps transfer rate
- Max. 6.5MHz pulse output rate
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed/position on-the-fly
- General purpose isolated I/O: 6 DI and 6 DO
- Easy installation with RJ45 phone jack and LED diagnostic

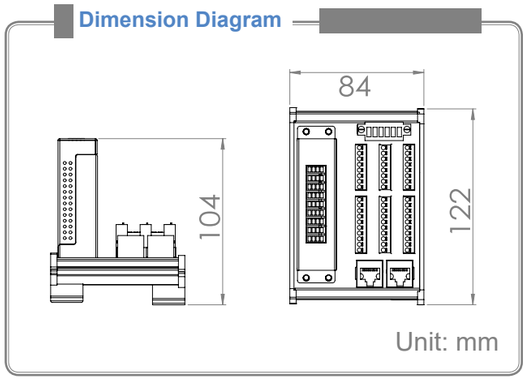
Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
General	
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	13 types
Velocity profile	T-curve and S-curve
Machine interface	PEL, MEL and ORG
Servo driver interface	ALM, SVON
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG, DI and DO
Isolated digital I/O	6 DI / 6 DO
General	
Power input	24VDC±10%
Power consumption	5W typical
Working temperature	0 to 60˚C

Ordering information

- **107-M2C3-GEN**
  Motionnet® 3-axis motion controller
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Dimension Diagram



107-M4A2-GEN

2-axis ARM-Base Motion Controller

Features

- 2-axis ARM-Base Motion Controller Motionnet® slave modules
- Max. 20Mbps transfer rate
- Max. 6.5MHz pulse output rate
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change target position by external input signal
- Easy installation with RJ45 phone jack and LED diagnostic

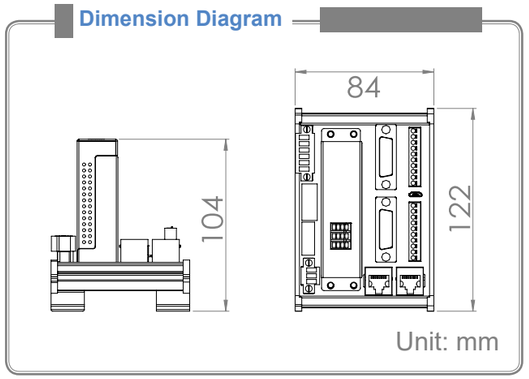
Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Motion	
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	3 types
Velocity profile	T-curve and S-curve
Machine interface	PEL, MEL and ORG, LTC
Servo driver interface	ALM, SVON
LED indicator	PWR, RUN, ERR, PEL, MEL, ORG, EMG
General	
Power input	24VDC±10%
Power consumption	5W typical
Working temperature	0 to 60˚C

Ordering information

- **107-M4A2-GEN**
  Motionnet® 2-axis motion controller
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M
- **SCB-193-10A / 20A / 30A-DA2 / GEN/MJ3 / SAN / YS5 / PA5**
  DB26-SCSI 50 pin cable, 1M/2M/3M

Dimension Diagram



106-M304T

4-axis Motion Controller

Features

- Dimensions: L-120 x W-64 x H-80mm
- Max. 6.5MHz, 4-axis pulse output rate
- 28-bit counter for incremental encoder
- Linear, circular and continuous interpolation
- Programmable acceleration and deceleration time
- T-curve and S-curve velocity profiles support
- Change speed/position on-the-fly
- Position compare and trigger output
- Compare output FIFO x 2
- Simultaneously start/stop on multiple motion control modules
- Easy installation with RJ45 phone jack and LED diagnostic

Ordering information

- **106-M304T**
  4-axis motion slave module
- **106-M304TE**
  4-axis motion slave module with Manual pulse generator
- **106-M304TD**
  4-axis motion slave module with 8 DI / 8 DO
- **104-T304**
  20-pin Box header for machinery I/O
- **SCB-193-10A/20A/30ADA2/GEN/MJ3/SAN/YS5/PA5**
  DB26-SCSI 50 pin cable, 1M/2M/3M
- **SCB-1BB-06A/10A/20A/30A/50A/A0A**
  CAT5 LAN cable, 0.6M/1M/2M/3M/5M/10M

I/O connector

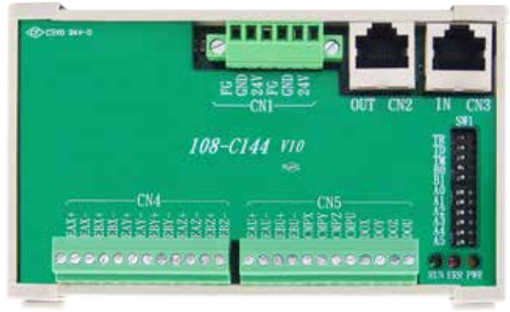
DB26

1	SVON	10	RST	19	EMG
2	INP	11	ALM	20	EGND
3	ERC	12	E24V	21	EGND
4	RDY	13	EGND	22	EGND
5	OUT-	14	N.C.	23	DIR-
6	OUT+	15	EGND	24	DIR+
7	EA+	16	EB-	25	EZ-
8	EA-	17	EB+	26	EZ+
9	N.C.	18	EGND		

Specifications

Motionnet®	
Communication controller	Motionnet® slave motion controller ASIC
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Motion	
Programmable pulse output mode	OUT/DIR, CW/CCW, A/B phase
Programmable pulse command speed	Max. 6.5Mpps
Home return mode	13 types
Velocity profile	T-curve and S-curve
Counter for encoder feedback signals	28 bits
Position latch input	LTC x 4
Position compare output	CMP x 2, 1,024 points / ch. CMP x 2
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4
General	
Power input	18VDC to 36VDC
Power consumption	3W typical
Working temperature	0 to 60˚C

108-C144

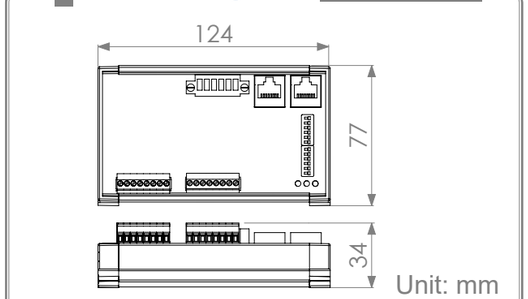


4-Ch. Encoder Slave Module

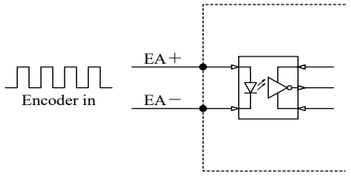
Features

- 4-Ch. Encoder Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Position compare and trigger output
- Compare output FIFO x 2
- DIN rail mounting (L-77 x W-124 x H-34 mm)

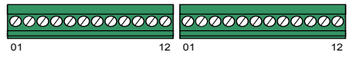
Dimension Diagram



Signal Wiring Diagram



I/O Connector



EAX+	01	01	EAU+
EAX-	02	02	EAU-
EBX+	03	03	EBU+
EBX-	04	04	EBU-
EAY+	05	05	CMPX
EAY-	06	06	CMPY
EBY+	07	07	CMPZ
EBY-	08	08	CMPU
EAZ+	09	09	DOX
EAZ-	10	10	DOY
EBZ+	11	11	DOZ
EBZ-	12	12	DOU

Terminal Definitions (CN4,CN5)

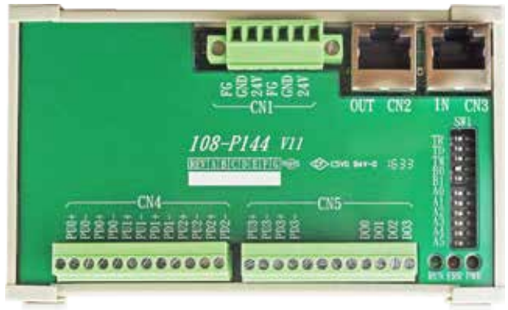
Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Encoder	
Encoder Ch.	4-Ch. independent 32-bit encoder
Encoder Input type	Isolated
Isolated input voltage	Logic level 0: 1V Max.; Logic level 1: 5V
Incremental encoder	±EA x 4, ±EB x 4
Digital output	DO x 4
Position compare output	CMP x 4 1,024 points / ch. 1 and 2
General	
Power input	18VDC to 36VDC
Power consumption	1.5W typical
Working temperature	0 to 60˚C

Ordering information

- **108-C144**
  4-Ch. Encoder input module
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

108-P144

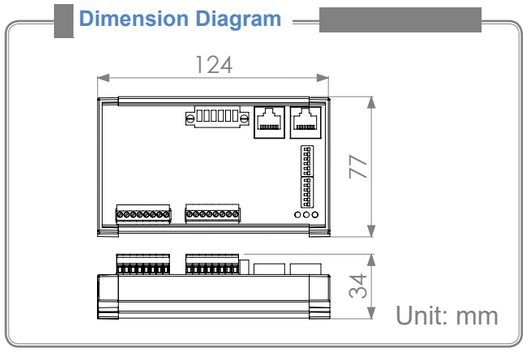


4-Ch. Counter Slave Module

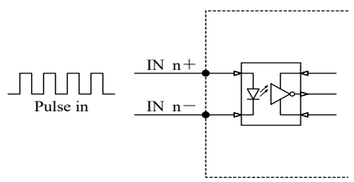
Features

- 4-Ch. up/down 32-bit Counter Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- Programmable input filter
- DIN rail mounting (L-77 x W-124 x H-34 mm)

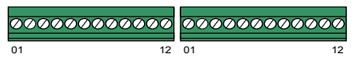
Dimension Diagram



Signal Wiring Diagram



I/O Connector



PU0+	01	01	PU3+
PU0-	02	02	PU3-
PD0+	03	03	PD3+
PD0-	04	04	PD3-
PU1+	05	05	NC
PU1-	06	06	NC
PD1+	07	07	NC
PD1-	08	08	NC
PU2+	09	09	DO0
PU2-	10	10	DO1
PD2+	11	11	DO2
PD2-	12	12	DO3

Terminal Definitions

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Encoder	
Counter Ch.	4-Ch. independent 32-bit counter
Counter Input type	Isolated
Isolated input voltage	Logic level 0: 1V Max.; Logic level 1: 24V
Input frequency	5Hz ~ 5MHz
Function mode	Counter, Frequency, Period
Input filter	1μs ~ 65,535μs
Output type	Open collector
General	
Power input	18VDC to 36VDC
Power consumption	1.5W typical
Working temperature	0 to 60˚C

Ordering information

- **108-P144**
  4-Ch. Pulse input module
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

108-H104

Motionnet® Hub

Features

- 4-Ch. Hub Motionnet® slave modules
- Max. 20Mbps transfer rate
- Easy installation with RJ45 phone jack and LED diagnosis
- DIN rail mounting (L-77 x W-69 x H-38 mm)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Number of Hub cascade	Max. 3 layers
Transfer delay time	900ns for up transfer and 900ns for down transfer (1800ns for both transfer)
Serial communication protocol	Motionnet® proprietary protocol
General	
Power input	18VDC to 36VDC
Power consumption	1.5W typical
Working temperature	0 to 60˚C

Ordering information

- **108-H104**
  Motionnet® Hub
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

108-G180

RS-485 Gateway

Features

- Max. 20Mbps transfer rate
- DCON transfers to Motionnet®
- Easy installation with RJ45 phone jack and LED diagnosis
- DIN rail mounting (L-77 x W-124 x H-38 mm)

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Number of DCON modules	Max. 16 modules
Baud rate of DCON modules	1200bps ~ 115200bps
Number of gateway modules	Max. 64 modules
Transfer data rate	0.4ms/20Mbps
General	
Power input	18VDC to 36VDC
Power consumption	1.5W typical
Working temperature	0 to 60˚C

Ordering information

- **108-G180**
  Motionnet® — RS-485 gateway
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Digital Slave Modules

EZM - D □ □ □ - □□

Series
EZM: EziModule Series

Slave Type
D: Digital I/O

Capacity
1: Standard Series
2: High-Density Series
4: High Output Current Series
6: High Protection Series

I/O Type
N: NPN
P: PNP
X: None

Digital Output
0: None
2: 16 Channels
4: 32 Channels

Digital Input
0: None
2: 16 Channels
4: 32 Channels

Model Name
EZM-D1xx Series
EZM-D2xx Series
EZM-D4xx Series
EZM-D604-XN

EZM-D1xx Series

32-Ch. DI/O Slave Module

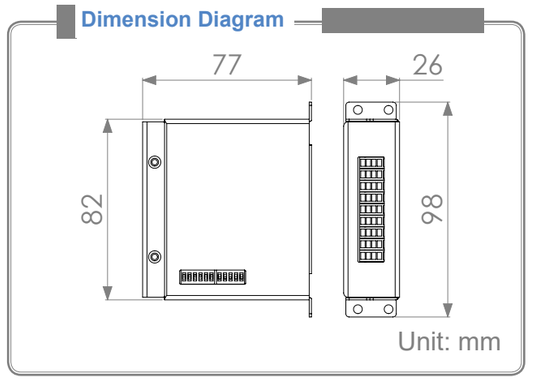
Features

- Max. 20Mbps transfer rate
- LED diagnostic
- Customize PCB mounting (L-98 x W-26 x H-77 mm)

Ordering information

- **EZM-D140-NXT**
  32 Ch. Digital input
- **EZM-D122-NNT**
  16 Ch. Digital input / output
- **EZM-D104-XNT**
  32 Ch. Digital output

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Input types	NPN
Input impedance	5.6KΩ/0.5W
Input current	±5mA(Max.)
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	3A (Max.) for each port (8 Ch.)
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60℃

EZM-D2xx Series

64 / 96 Ch. DI/O Slave Module

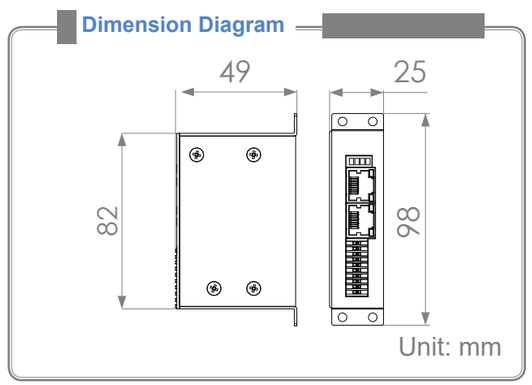
Features

- Max. 20Mbps transfer rate
- Flexible I/O interface deployment
- Customize PCB mounting (L-98 x W-25 x H-49 mm)

Ordering information

- **EZM-D542**
  64-Ch. Digital input / 32-Ch. Digital output
- **EZM-D260**
  96 Ch. Digital input
- **EZM-D242**
  64 Ch. / 32 Ch. Digital input / output
- **EZM-D233**
  48 Ch. / 48 Ch. Digital input / output
- **EZM-D224**
  32 Ch. / 64 Ch. Digital input / output
- **EZM-D206**
  96 Ch. Digital output

Dimension Diagram



Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Status LED	Power, Error and Run
Switch	Baudrate and Address
General	
Power input	5VDC±5%
Power consumption	1.5W typical
Working temperature	0 to 60˚C

EZM-D4xx Series

16 Ch. DI/O Slave Module

Features

- Max. 20Mbps transfer rate
- Flexible I/O interface deployment
- Customize PCB mounting (L-98 x W-25 x H-77 mm)

Ordering information

- **EZM-D604-XN**
  32-Ch. Digital input / 32-Ch. Digital output
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
Status LED	Power, Error and Run
General	
Power input	24VDC±10%
Power consumption	3W typical
Working temperature	0 to 60˚C

EZM-D604-XN

32-Ch. Digital I/O slave modules

Features

- Max. 20Mbps transfer rate
- Flexible I/O interface deployment
- Customize PCB mounting (L-98 x W-25 x H-77 mm)
- Short Circuit Protection

Specifications

Motionnet®	
Serial interface	Half duplex RS-485 with transformer isolation
Cable type	CAT5 UTP/STP Ethernet cable
Surge protection	10KV
Transmission speed	2.5Mbps, 5Mbps, 10Mbps and 20Mbps
I/O isolation voltage	3750Vrms
Digital Output	32 channels
Output types	Open drain MOSFET-N Integral suppression on diodes for inductive loads
Switch capacity	Each output Ch. is 500mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
Over current protection	4A (max) for each port (8-Ch)
Over voltage Protection	42V
Short Circuit Protection	Yes
General	
Power input	24VDC±10%
Power consumption	4W typical
Working temperature	0 to 60˚C

PCIe Card

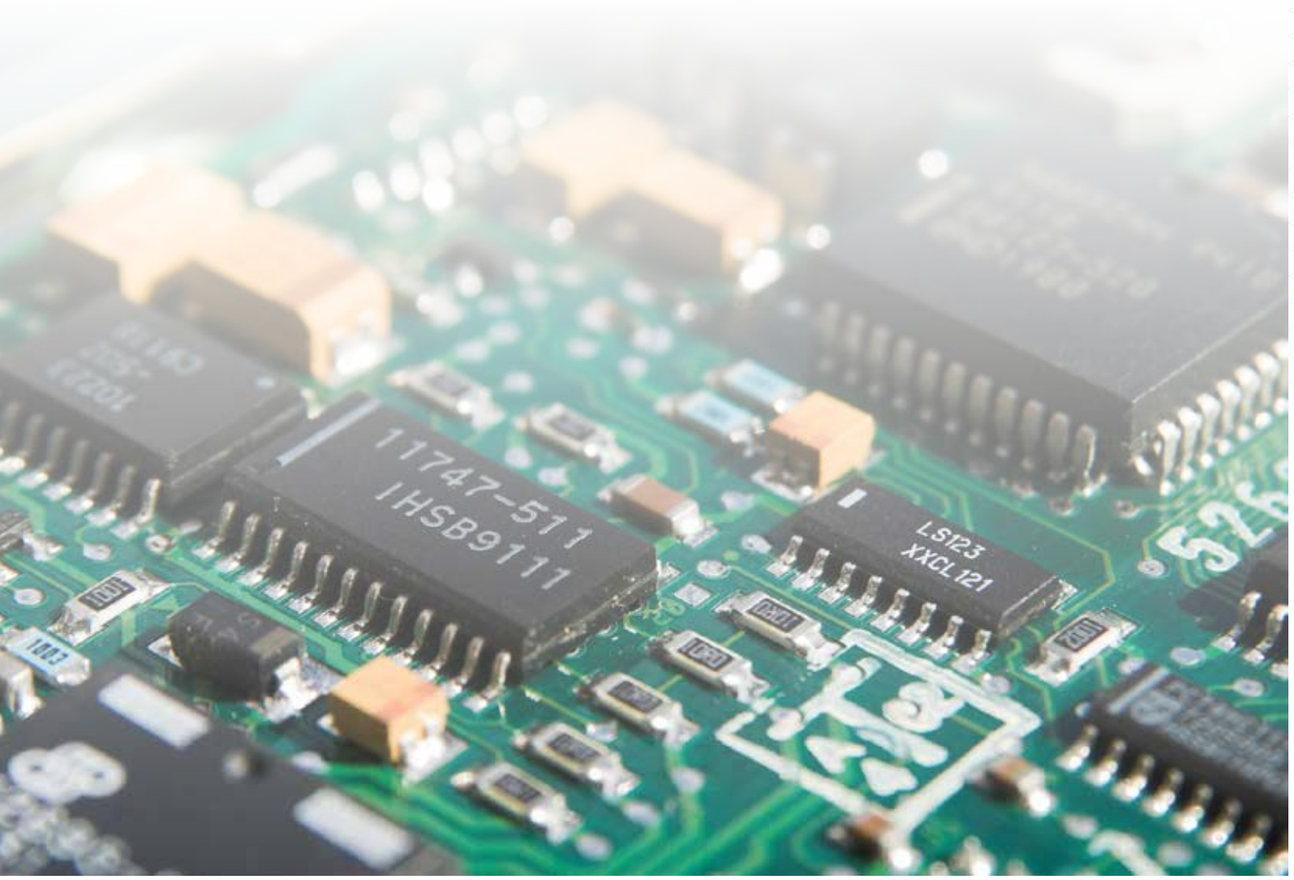
Table of **Contents**

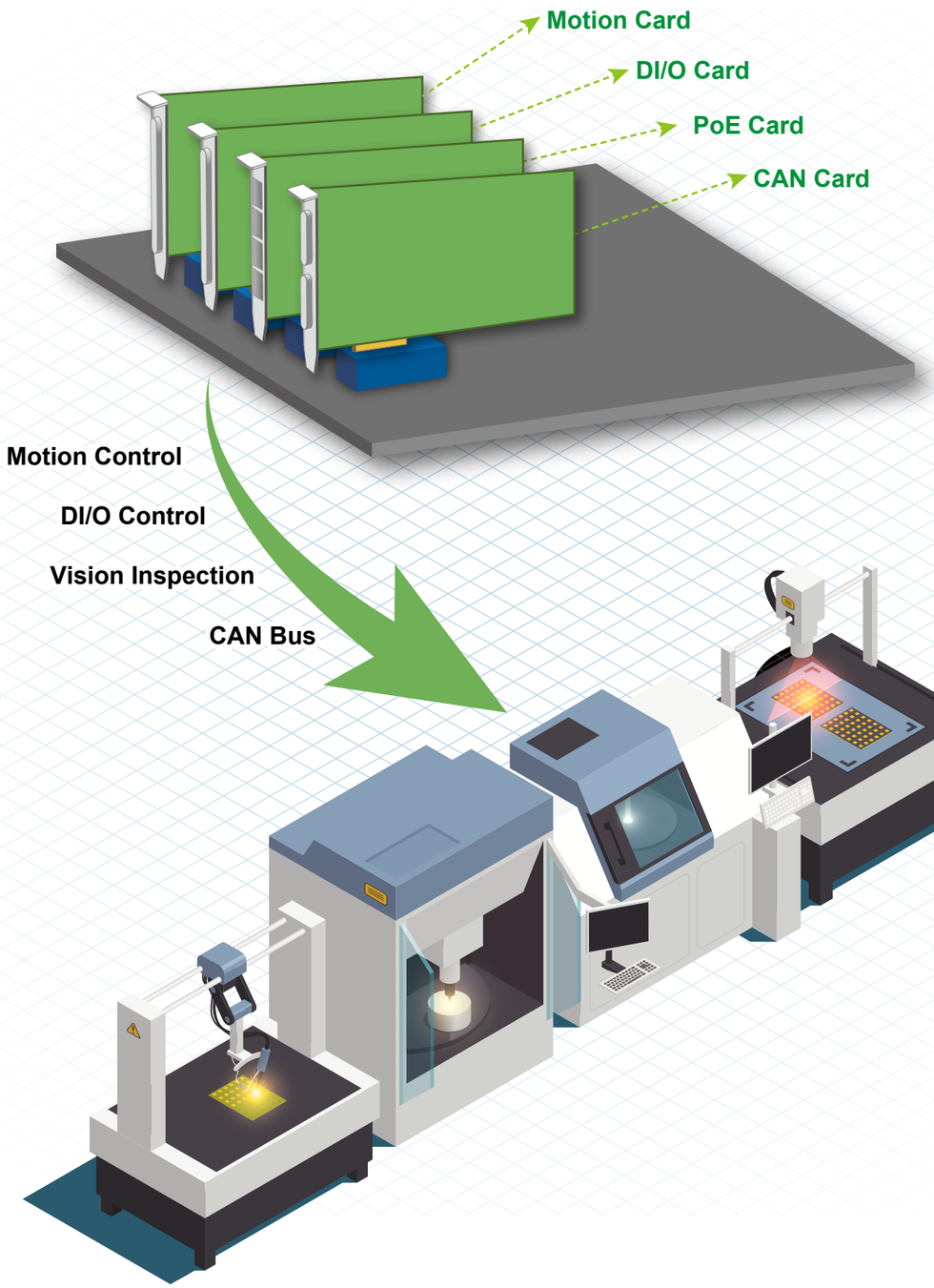
PCI Express

PCI Express (PCIe) bus is a high-speed serial replacement of the older PCI/PCI-X bus.PCIe is based on point-to-point topology with separate serial links connecting every device to the host.

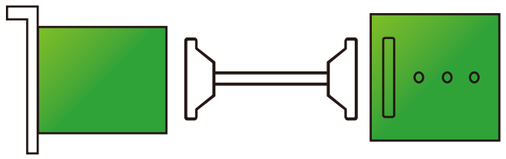
PCIe bus link supports full-duplex communication between any two endpoints, with no inherent limitation on concurrent access across multiple endpoints. The PCI Express link between two devices can consist of anywhere from 1 to 32 lanes. In a multi-lane link, the packet data is striped across lanes and peak data throughput scales with the overall link width. The lane count is automatically negotiated during device initialization and can be restricted by either endpoint. For example, a single-lane PCIe (×1) card can be inserted into a multi-lane slot (×4, ×8, etc.), and the initialization cycle auto-negotiates the highest mutually supported lane count.

In terms of the bus protocol, PCIe communication is encapsulated in packets. The work of packetizing and depacketizing data and status-message traffic is handled by the transaction layer of the PCI Express port. Radical differences in electrical signaling and bus protocol require the use of a different mechanical form factor and expansion connectors. At the software level, PCIe preserves backward compatibility with PCI; legacy PCI system software can detect and configure newer PCIe devices without explicit support for the PCIe standard, though new PCIe features are inaccessible.



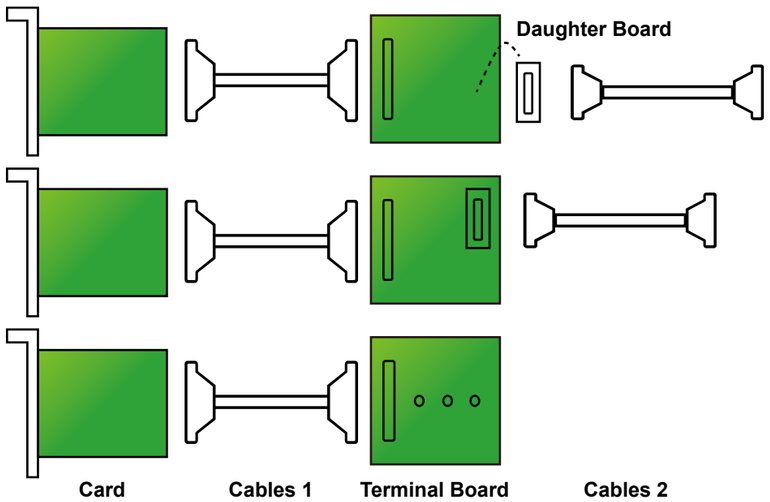


Combination 1



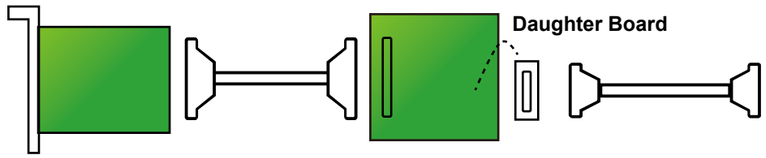
Card	Cables	Terminal Board
PCE-D132A-SN (P.155)	SCB-166 (P.201)	107-T160-DUM (P.199) 107-T161-DUM (P.199)
PCE-D122IS-SN (P.158)		
PCE-D150A-SX (P.156)		
PCE-D105A-XN (P.157)		
PCE-M134-LD (P.147)	SCB-166 (P.201)	107-T160-DUMP (P.199)
		107-T161-DUM (P.199)
		107-T162-DUMG (P.199)

Combination 2



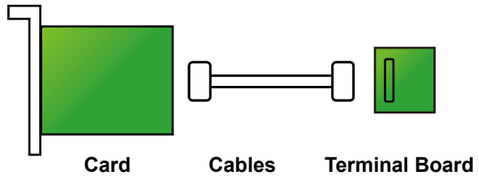
Card	Cables 1	Terminal Board	Daughter Board	Cables 2
PCE-M134 (P.146)	SCB-166 (P.201)	107-T141-GEN (P.200)	DB-T141-XX (P.200)	SCB-133 (P.201)
PCE-M114 (P.145)		107-T142-GEN (P.199)		SCB-193 (P.201)
PCE-M134 (P.146)		107-T160-DUMP (P.199)		
		107-T161-DUM (P.199)		
		107-T162-DUMG (P.199)		
PCE-M118-GL (P.79)	SCB-186 (P.201)	107-T141-GEN (P.200)	DB-T141-XX (P.200)	SCB-133 (P.201)
		107-T142-GEN (P.199)		SCB-193 (P.201)
		107-T160-DUMP (P.199)		
		107-T161-DUM (P.199)		

Combination 3



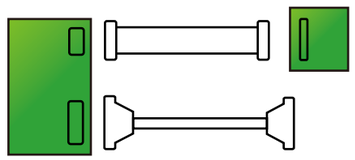
Card	Cables 1	Terminal Board	Daughter Board	Cables 2
PCE-M114-GL (P.81)	SCB-2544 (P.201)	107-T121-GEN (P.200)	DB-T141-XX (P.200)	SCB-133 (P.201)
PCE-M114-GM (P.81)				
PCI-M114-GL (P.85)				

Combination 4



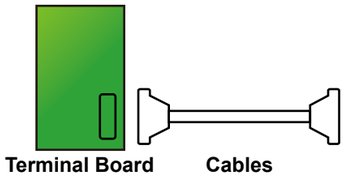
Card	Cables 1	Terminal Board
PCE-L122-DCO (P.77)	SCB-111 (P.201)	104-T110-DUM (P.199)
PCE-L123-DCO (P.78)		
PCI-L122-DSF (P.83)		
SPC-3221 (P.175)		
SPC-3212 (P.177)		
SPC-3204 (P.179)		

Combination 5



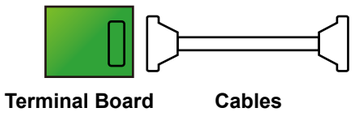
Terminal Board	Cables	Terminal Board
106-M304T (P.127)	IDC Cable	104-T304 (P.199)
	SCB-193 (P.201)	

Combination 6



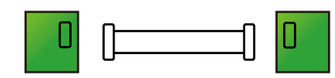
Terminal Board	Cables
107-M2A2-GEN (P.124)	SCB-193 (P.201)
207-M2A2-GEN (P.47)	

Combination 7



Terminal Board	Cables
102-T1A1-HDB (P.199)	SCB-193 (P.201)

Combination 8



Terminal Board	Cables	Terminal Board
102-M1x1 (P.123)	IDC Cable	102-M101-DUM (P.199)

Motion Card

□□□ - M □ □ □ - □□

Bus Standard
PCE: PCIe
PCI: PCI

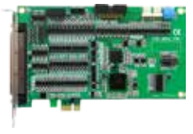
Card Type
M: Motion Control

Num of Axis
M118: 8-Axis
M114: 4-Axis
M134: 4-Axis

Advanced Function
LD: 16DI/16DO

Model Name
PCE-M118
PCE-M114
PCE-M134
PCE-M134-LD
PCI-M114

PCI Express / PCI Card

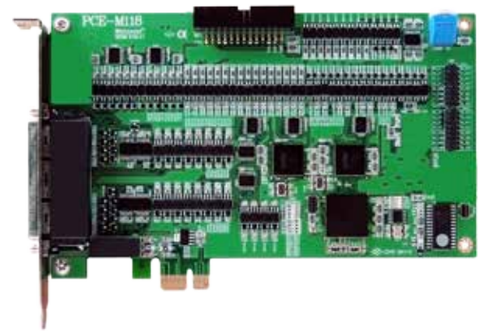

Features Models		PCE-M118	PCE-M114	PCE-M134
Bus Interface		PCI Express x1	PCI Express x1	PCI Express x1
Secure ID		√	√	-
CardID Switch		0~15		
Number of Axes		8	4	4
Pulse Output	Rate	6.5Mpps	6.5Mpps	2.4Mpps
	Mode	OUT/DIR, CW/CCW, A/B	OUT/DIR, CW/CCW, A/B	OUT/DIR, CW/CCW
	Counter	32 bits	32 bits	24 bits
Encoder Input	Rate	6.5Mpps		
	Mode	CW/CCW, A/B		
	Index Signal	√	√	-
Machine I/O Interface		PEL / MEL / ORG / SLD / LTC / EMG	PEL / MEL / ORG / SLD / EMG	PEL / MEL / ORG / EMG
Servo Drive I/O	Input	ALM / RDY / INP	ALM / RDY / INP	ALM
	Output	SVON / ERC / ALMRST	SVON / ERC / ALMRST	SVON
Isolated Digital I/O		-	-	-
Velocity Profiles		T-curve and S-curve	T-curve and S-curve	T-curve and S-curve
Motion Operation	Linear Interpolation	Any 2~4 Axes	Any 2~4 Axes	Any 2~4 Axes
	Circular Interpolation	Any 2 Axes	Any 2 Axes	-
	Helical Interpolation	√	√	-
	Home Return Mode	13 Types	13 Types	3 Types
	Continuous Moving	3 Command Buffer	3 Command Buffer	-
Programmable Position Compare	Trigger Channel	4	4	4
	Trigger Width	√ (3μs ~ 65535μs)	√ (3μs ~ 65535μs)	√ (3μs ~ 65,535μs)
	Trigger Table	4 * 1,024	4 * 2,048	4 * 1,024
	Trigger Rate	Max. 100KHz	Max. 100KHz	Max. 100KHz
Advanced Feature	Manual Pulse Generator	√	√	-
	Simultaneously Start/ Stop	√	√	-
	Customized DO Frequency	-	-	-
	Ring Counter	√	√	-
Motion Connector Interface		VHDCI 100 x 2	SCSI 100	SCSI 100
Page number		P.144	P.145	P.146

PCI Express / PCI Card

Features Models		PCE-M134-LD	PCI-M114
Bus Interface		PCI Express x1	PCI
Secure ID		-	√
CardID Switch		0~15	
Number of Axes		4	4
Pulse Output	Rate	2.4Mpps	6.5Mpps
	Mode	OUT/DIR, CW/CCW	OUT/DIR, CW/CCW, A/B
	Counter	24 bits	32 bits
Encoder Input	Rate	-	6.5Mpps
	Mode	-	CW/CCW, A/B
	Index Signal	-	√
Machine I/O Interface		PEL / MEL / ORG / SLD / EMG	PEL / MEL / ORG / SLD / LTC / EMG
Servo Drive I/O	Input	ALM	ALM / RDY / INP
	Output	SVON	SVON / ERC / ALMRST
Isolated Digital I/O		16 DI / 16 DO	-
Velocity Profiles		T-curve and S-curve	
Motion Operation	Linear Interpolation	Any 2~4 Axes	Any 2~4 Axes
	Circular Interpolation	-	Any 2 Axes
	Helical Interpolation	-	√
	Home Return Mode	3 Types	13 Types
	Continuous Moving	-	3 Command Buffer
Programmable Position Compare	Trigger Channel	4	2
	Trigger Width	√ (3μs ~ 65535μs)	√ (3μs ~ 65,535μs)
	Trigger Table	4 * 1,024	2 * 250
	Trigger Rate	Max. 100KHz	Max. 100KHz
Advanced Feature	Manual Pulse Generator	-	√
	Simultaneously Start/ Stop	-	√
	Customized DO Frequency	-	-
	Ring Counter	-	√
Motion Connector Interface		SCSI 100	SCSI 100
Page number		P.147	P.148

PCE-M118

8-Axis Motion Card



Features

- PCI Express x1 compliant
- On-board 8-axis motion control with Max. 6.5MHz pulse output rate
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 4
- Hardware IC with unique ID

Ordering information

- **PCE-M118**
  8-axis Motion card
- **107-T142-GEN**
  Terminal board for 4-axis
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis
- **107-T162-DUMG**
  Terminal board for 4-axis
- **SCB-186-20A**
  VHDCI 100 pin + SCSI 100 pin, 2M

Specifications

Motion Control	
Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 8
Position compare output	CMP x 4, 1,024 points / ch.; CMP x 4
Incremental encoder input	±EA x 8, ±EB x 8
Encoder index signal input	±EZ x 8
Machine interface	PEL x 8, MEL x 8, ORG x 8, SLD x 8
Servo drive interface	ALM x 8, RDY x 8, SVON x 8, INP x 8, ERC x 8, ALMRST x 8
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 2
I/O pin type	Optically isolated with 3750Vrms on all VHDCI 100 pin x 2
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA,12VDC at 55mA typical
Working temperature	0 to 60˚C

PCE-M114
PCE-M114A

4-Axis Motion Card

Features

- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- High Speed FIFO LATCH x 2
- Compare output FIFO x 4
- Hardware IC with unique ID

Ordering information

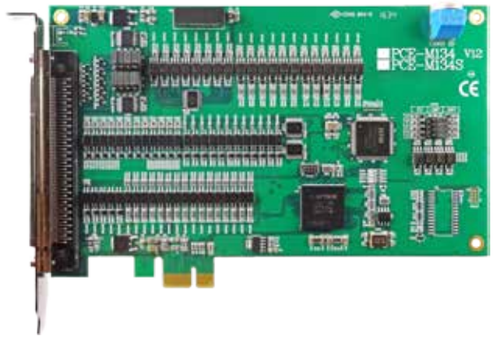
- **PCE-M114**
  4-Axis Motion Card w. 2K trigger table
- **PCE-M114A**
  4-Axis Motion Card w. 4K trigger table
- **PCE-M114B**
  4-Axis Motion Card w. 2D trigger table
- **107-T142-GEN**
  Terminal board for 4-axis
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis
- **107-T162-DUMG**
  Terminal board for 4-axis
- **SCB-166-20A**
  SCSI 100 pin, 2M

Specifications

Motion Control	
Pulse output mode	OUT/DIR, CW/CCW, A/B
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4, 1,024 Points / ch1&2.
Position compare output	CMP x 4, 2,048 Points / ch. CMP x 4, 4,096 Points / ch. (A)
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

PCE-M134

4-Axis Motion Card



Features

- On-board 4-axis motion control with Max. 2.4MHz pulse output rate
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 4

Ordering information

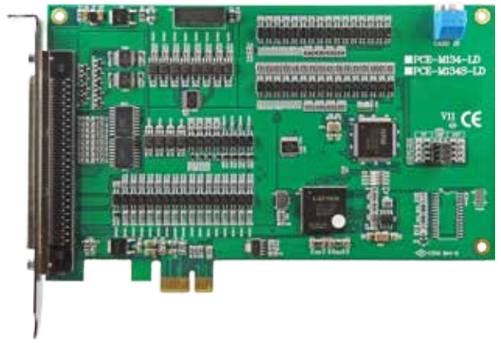
- **PCI-M134**
  4-Axis Motion Card
- **107-T142-GEN**
  Terminal board for 4-axis
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis
- **107-T162-DUMG**
  Terminal board for 4-axis
- **SCB-166-20A**
  SCSI 100 pin, 2M

Specifications

Motion Control	
Pulse output mode	OUT/DIR, CW/CCW
Pulse output rate	Max. 2.4Mpps
Position range	24 bits
Home return mode	3 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear
Counter for encoder feedback signals	24 bits
Position compare output	CMP x 4, 1,024 Ponits / ch.
Incremental encoder input	±EA x 4, ±EB x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

PCE-M134-LD

4-Axis Motion Card



Features

- On-board 4-axis motion control with Max. 2.4MHz pulse output rate
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 4
- General purpose isolated I/O: 16 DI and 16 DO

Ordering information

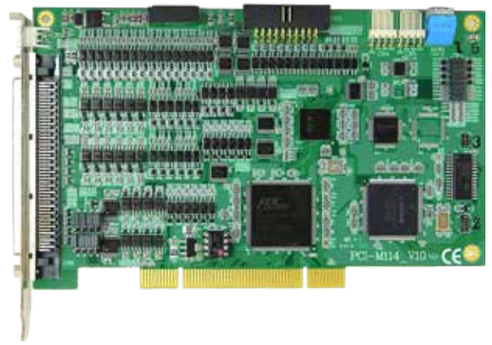
- **PCE-M134-LD**
  4-axis Motion Card with isolated DI / DO
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis
- **107-T162-DUMG**
  Terminal board for 4-axis
- **SCB-166-20A**
  SCSI 100 pin, 2M

Specifications

Motion Control	
Pulse output mode	OUT/DIR, CW/CCW
Pulse output rate	Max. 2.4Mpps
Position range	24 bits
Home return mode	3 types
Velocity profiles	T-curve and S-curve
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, SVON x 4
Emergency input	EMG x 1
Position compare output	CMP x 4, 1,024 points / ch.
Isolated digital input	IN x 16, NPN type
Isolated digital output	OUT x 16, NPN type
Input logic	Logic: 0V to 1.5V ; Logic: 5V to 24V
Output types	NPN open darlington transistors
Switch capacity	Each output Ch. is 100mA at 24VDC
Response time	On to Off, about 50μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

PCI-M114

4-Axis Motion Card



Features

- On-board 4-axis motion control with Max. 6.5MHz pulse output rate
- Linear, circular, helical and continuous interpolation
- High speed position latch function
- Simultaneously start/stop on multiple axes
- Programmable acceleration and deceleration time
- Programmable pulse output and interrupt
- Position compare and trigger output
- Compare output FIFO x 2
- Hardware IC with unique ID

Ordering information

- **PCI-M114**
  4-axis Motion card
- **107-T142-GEN**
  Terminal board for 4-axis
- **107-T160-DUMP**
  Terminal board for 4-axis
- **107-T161-DUM**
  Terminal board for 4-axis
- **107-T162-DUMG**
  Terminal board for 4-axis
- **SCB-166-20A**
  SCSI 100 pin, 2M

Specifications

Motion Control	
Pulse output mode	OUT/DIR, CW/CCW, A/B phase
Pulse output rate	Max. 6.5Mpps
Position range	32 bits
Home return mode	13 types
Velocity profiles	T-curve and S-curve
Interpolation mode	Linear, circular, helical and continuous
Counter for encoder feedback signals	32 bits
Position latch input	LTC x 4
Position compare output	CMP x 4
Incremental encoder input	±EA x 4, ±EB x 4
Encoder index signal input	±EZ x 4
Machine interface	PEL x 4, MEL x 4, ORG x 4, SLD x 4
Servo drive interface	ALM x 4, RDY x 4, SVON x 4, INP x 4, ERC x 4, ALMRST x 4
Simultaneous start/ stop motion input	STA, STP
Emergency input	EMG x 1
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin
General	
Specifications	PCI Spec. 2.2 ; supports 32 bits
Power consumption	5VDC at 500mA typical
Working temperature	0 to 60˚C

DAQ Card Part Numbering DAQ Card

DAQ Card

PCE - V 1 □ □

Bus Standard
PCE: PCIe

Card Type
V: Vision Grabber

Num of Channel
2: 2 Channels
4: 4 Channels

Graber Interface
4: PoE
6: USB3

Model Name
PCE-V144PS
PCE-V142PS

□□□ - C 1 □ □ - □□□

Bus Standard
PCE: PCIe
LPE: Low Profile PCI Express

Card Type
C: Communication

I/O Type
N: NPN
P: PNP
S: NPN/PNP
X: None

Num of Channel
2: 2 Channels
4: 4 Channels
8: 8 Channels

FieldBus type
1: COM Port
2: CAN Bus

Model Name
LPE-C122
PCE-C122D
PCE-C122T

PCE - D 1 □ □ - □□□

Bus Standard
PCE: PCIe

Card Type
D: Digital I/O

I/O Type
N: NPN
P: PNP
S: NPN/PNP
X: None

Digital Output
0: None
2: 32 Channels
3: 48 Channels
4: 64 Channels
5: 80 Channels

Digital Input
0: None
2: 32 Channels
3: 48 Channels
4: 64 Channels
5: 80 Channels

Model Name
PCE-D132A-SN
PCE-D150A-SX
PCE-D105A-XN
PCE-D122IS-SN
PCE-D140A-SX
PCE-D104A-XN

PoE Card

Features Models	PCE-V144PS	PCE-V142PS
Bus Interface	PCI Express x1	PCI Express x1
Number of Port	4	2
Ethernet Controller	Intel® I350 Ethernet Controller	
Connector	RJ45, CAT-5e or CAT-6 Cable	
Jumbo Frame	9.5KB	
PoE Capability	802.3at (25.4W for each port)	
Page number	P.153	P.154

Digital I/O Card

Features Models		PCE-D122IS-SN	PCE-D140A-SX	PCE-D104A-XN
Bus Interface		PCI Express x1		
Digital Intput	Channels	32	64	0
	Type	NPN / PNP	NPN / PNP	-
Digital Output	Channels	32	0	64
	Type	NPN	-	NPN
	Switch Capacity	350mA / Ch.	-	350mA / Ch.
I/O Isolation		3750Vrms		
Response Time		On to Off, about 50μs ; Off to On, about 10μs		
I/O PIN Type		SCSI 100 pin Connector		
Page number		P.158	P.159	P.160

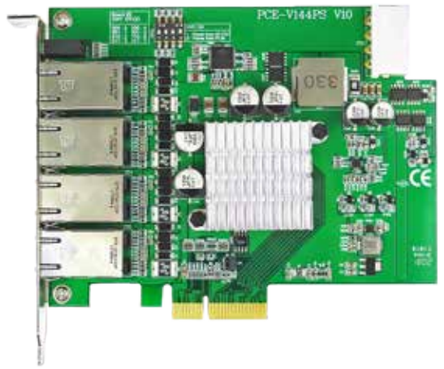
Digital I/O Card

Features Models		PCE-D132A-SN	PCE-D150A-SX	PCE-D105A-XN
Bus Interface		PCI Express x1		
Digital Intput	Channels	48	80	0
	Type	NPN / PNP	NPN / PNP	-
Digital Output	Channels	32	0	80
	Type	NPN	-	NPN
	Switch Capacity	350mA / Ch.	-	350mA / Ch.
I/O Isolation		3750Vrms		
Response Time		On to Off, about 50μs ; Off to On, about 10μs		
I/O PIN Type		SCSI 100 pin Connector		
Page number		P.155	P.156	P.157

CAN Bus Card

Features Models	LPE-C122	PCE-C122D	PCE-C122T
Bus Interface	PCI Express x1		
Protocol	CAN 2.0 A,B		
Channels	2		
I/O Isolation Voltage	3750Vrms		
Baud Rate	Max. 1 Mbps		
Terminator Resistor	Jumper for 120 Ω terminator resistor		
I/O PIN Type	DB15 Male * 1	DB9 Male * 2	5-pin TB * 2
Page number	P.161	P.162	P.163

PCE-V144PS



4-Port GigE Vision PoE Frame Grabber Card

Features

- PCI Express x4 compliant
- Intel Server-grade I350 Ethernet Controller
- 4 independent Gigabit Ethernet Ports
- IEEE 802.3at Power over Ethernet standard
- Dimesions: L-150 x W-111.2 mm

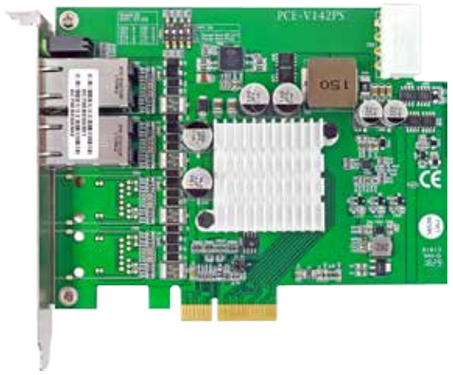
Ordering information

- **PCE-V144PS**
  4-Port PCI Express PoE frame grabber
- **PCE-V142PS**
  2-Port PCI Express PoE frame grabber
- **SCB-1BB-06A/10A/20A/30A/50A/A0A**
  CAT5 LAN cable, 0.6M/1M/2M/3M/5M/10M

Specifications

PoE	
Bus interface	PCI Express x4 Gen 2
Ethernet controller	Intel I350 Ethernet controller
Number of port	4
Jumbo frame	Support 9.5KB jumbo frame
Link aggregation(LAG)	Present
Connector	RJ45, CAT-5e or CAT-6 cable
PoE capability	In compliant with IEEE 802.3at. Each port up to 25.4W power Max. 62 Watts output all ports.
PoE standard	Powered Device(PD) Auto-detection and classification
Isolated protection	2.25KV isolation on LAN and power
General	
Specifications	4-lane 2 Gb/s PCI Express Gen 2
Power consumption	3.3VDC at Max. 1.2A from PCI Express bus PoE : 12VDC at Max. 6A from PCI Express bus or 4-pin 12VDC power connector
Working temperature	0 to 50˚C

PCE-V142PS



2-Port GigE Vision PoE Frame Grabber Card

Features

- PCI Express x4 compliant
- Intel Server-grade I350 Ethernet Controller
- 2 independent Gigabit Ethernet Ports
- IEEE 802.3at Power over Ethernet standard
- Dimesions: L-150 x W-111.2 mm

Ordering information

- **PCE-V144PS**
  4-Port PCI Express PoE frame grabber
- **PCE-V142PS**
  2-Port PCI Express PoE frame grabber
- **SCB-1BB-06A/10A/20A/30A/50A/A0A**
  CAT5 LAN cable, 0.6M/1M/2M/3M/5M/10M

Specifications

PoE	
Bus interface	PCI Express x4 Gen 2
Ethernet controller	Intel I350 Ethernet controller
Number of port	2
Jumbo frame	Support 9.5KB jumbo frame
Link aggregation(LAG)	Present
Connector	RJ45, CAT-5e or CAT-6 cable
PoE capability	In compliant with IEEE 802.3at. Each port up to 25.4W power
PoE standard	Powered Device(PD) Auto-detection and classification
Isolated protection	2.25KV isolation on LAN and power
General	
Specifications	4-lane 2 Gb/s PCI Express Gen 2
Power consumption	3.3VDC at Max. 1.2A from PCI Express bus PoE : 12VDC at Max. 9.6A from PCI Express bus or 4-pin 12VDC power connector
Working temperature	0 to 50˚C

PCE-D132A-SN NEW

48-Ch. Isolated Digital IN

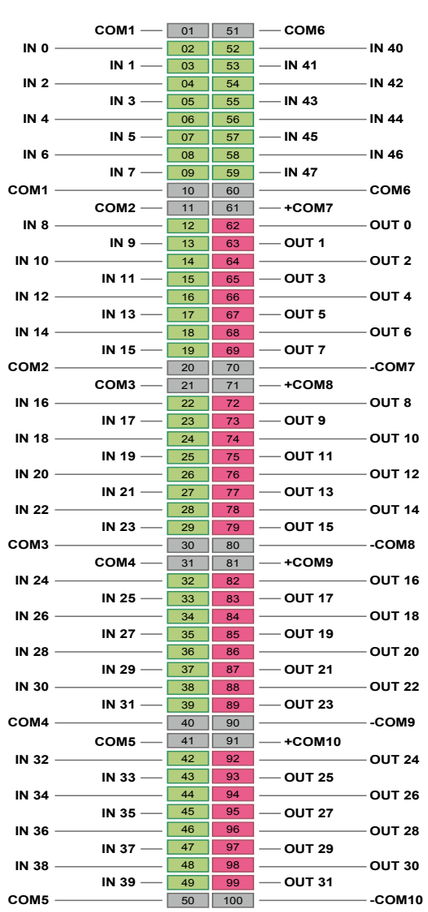
32-Ch. Isolated Digital OUT

Features

- 48-Ch. Digital Input and 32-Ch. Digital Output
- PCI Express x1 compliant
- Board ID
- Readable digital output signals

Pin Definition

PCE-D132A



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ0.5W
Input logic	Logic 0: 0V to 1.5V ; Logic 1: 5V to 24V
Input types	NPN/ PNP
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC 1500mA (max) for each port (8-channel)
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D132A-SN**
  48-Ch. Digital input and 32-Ch. Digital output with NPN type
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

PCE-D150A-SX

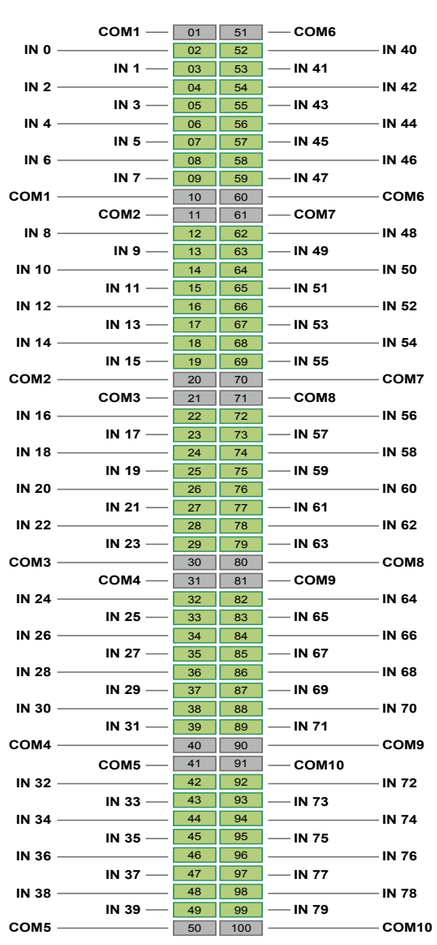
80-Ch. Isolated Digital IN

Features

- 80-Ch. Digital Input
- PCI Express x1 compliant
- Board ID

Pin Definition

PCE-D150A



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input logic	Logic 0: 0V to 1.5V ; Logic 1: 5V to 24V
Input types	NPN / PNP
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

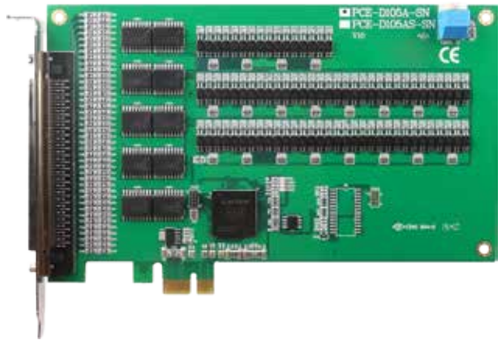
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D150A-SX**
  80-Ch. Digital input
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

PCE-D105A-XN

80-Ch. Isolated Digital OUT

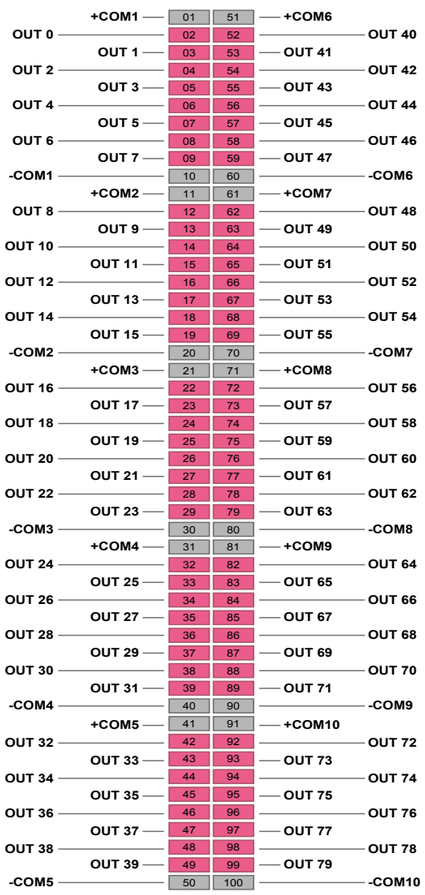


Features

- 80-Ch. Digital Output
- PCI Express x1 compliant
- Board ID
- Readable digital output signals

Pin Definition

PCE-D105A



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC 1500mA (max) for each port (8-channel)
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D105A-XN**
  80-Ch. Digital output with NPN type
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

PCE-D122IS-SN

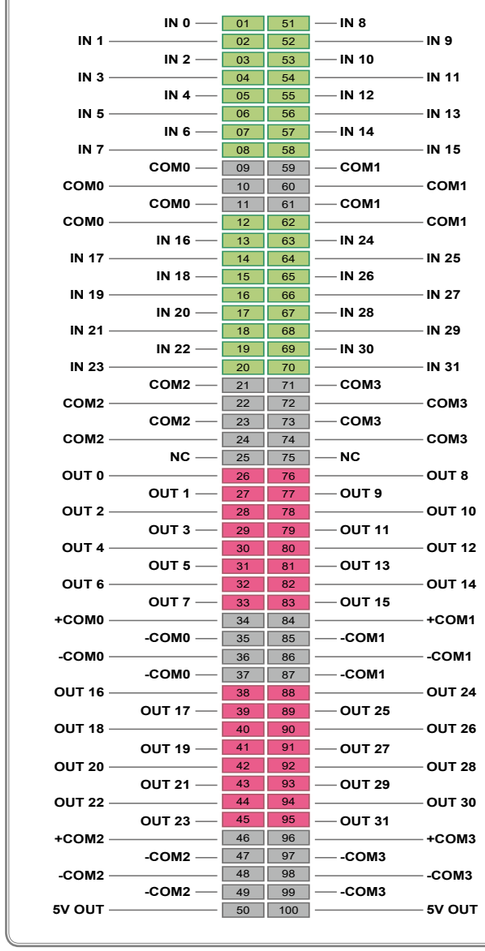
32-Ch. Digital Input and 32-Ch. Digital Output

Features

- 32-Ch. Digital Input and 32-Ch. Digital Output
- PCI Express x1 compliant
- Board ID
- Readable digital output signals

Pin Definition

PCE-D122IS-SN



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input logic	Logic 0: 0V to 1.5V; Logic 1: 5V to 24V
Input types	NPN / PNP
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC 1500mA (max) for each port (8-channel)
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

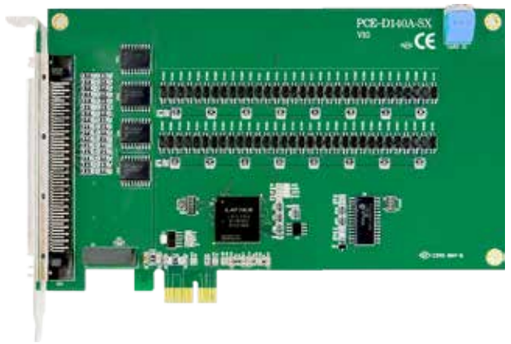
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D122IS-SN**
  32-Ch. Digital input and 32-Ch. Digital output with NPN type
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

PCE-D140A-SX

64-Ch. Isolated Digital IN

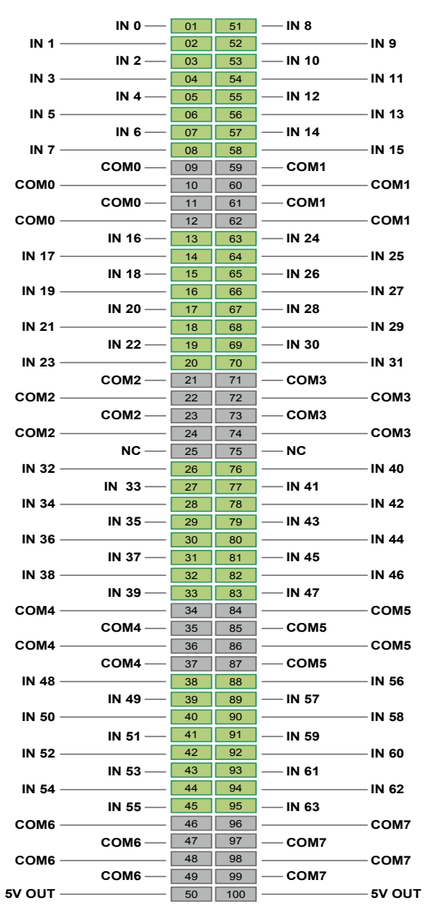


Features

- 64-Ch. Digital Input
- PCI Express x1 compliant
- Board ID
- Readable digital output signals

Pin Definition

PCE-D140A



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Input impedance	5.6KΩ/0.5W
Input logic	Logic 0: 0V to 1.5V ; Logic 1: 5V to 24V
Input types	NPN / PNP
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

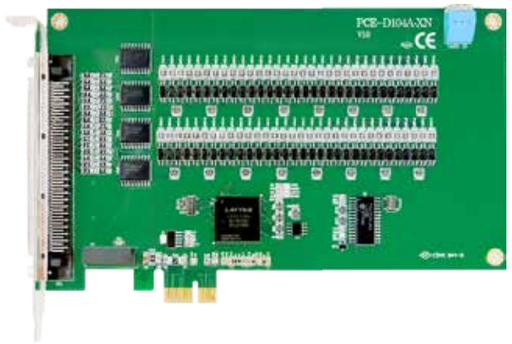
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D140A-SX**
  64-Ch. Digital input
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

PCE-D104A-XN

64-Ch. Isolated Digital OUT

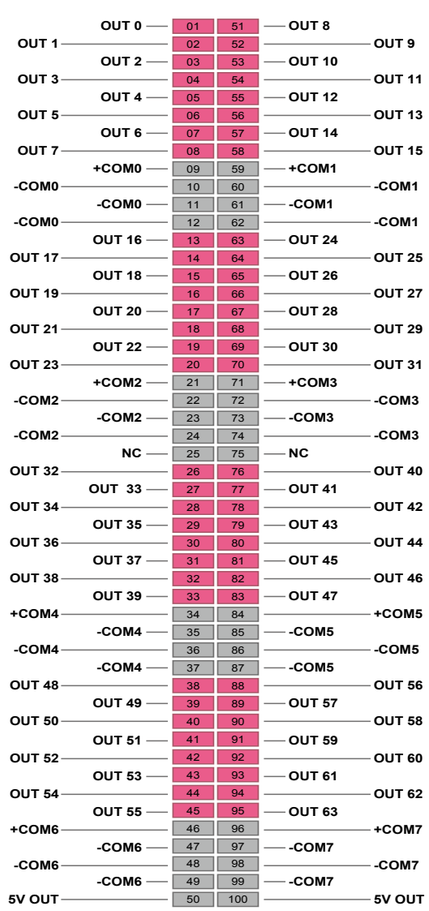


Features

- 64-Ch. Digital Output
- PCI Express x1 compliant
- Board ID
- Readable digital output signals

Pin Definition

PCE-D104A



Specifications

Digital I/O Interface

Surge protection	10KV
I/O isolation voltage	3750Vrms
Output types	NPN open collector darlington transistors
Switch capacity	Each output Ch. is 350mA at 24VDC 1500mA (max) for each port (8-channel)
Response time	On to Off, about 100μs ; Off to On, about 10μs
I/O pin type	Optically isolated with 3750Vrms on all SCSI 100 pin

General

Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 430mA, 12VDC at 55mA typical
Working temperature	0 to 60˚C

Ordering information

- **PCE-D104A-XN**
  64-Ch. Digital output with NPN type
- **107-T160-DUM**
  General-purpose terminal board
- **107-T161-DUM**
  General-purpose terminal board
- **SCB-166-20A**
  SCSI 100 pin, 2M

LPE-C122

2-Port Isolated CAN Bus Card

Features

- PCI Express x1 compliant
- Low profile form factor
- CAN 2.0 A,B Protocol
- Two independent CAN communication operation
- Up to 1 Mbit/s programmable transfer rate on each port
- 120 ohm termination resistor selected by jumper

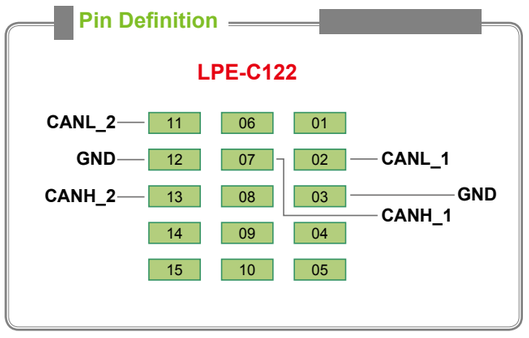
Ordering information

- **LPE-C122**
  2-port isolated CAN card
- **Y Cable from DB15 to Two DB9 MM**
  DB15 - DB9M+DB9M, 0.5M

Software Supporting

- **Windows 2000/XP/7/10 WDM and Linux driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000/XP/7 platform with DLL
- **DeviceNet DLL supported by request**

Pin Definition

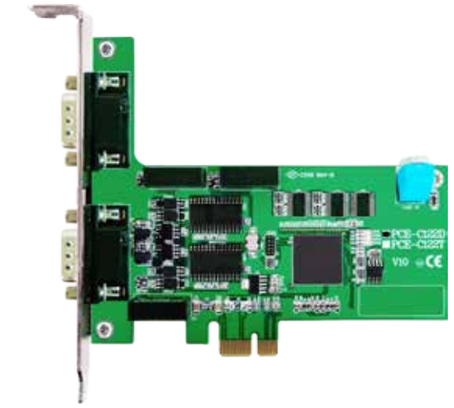


Specifications

CAN	
Number of port	2
CAN controller	SJA1000
Protocol	CAN 2.0 A,B
Speed	1Mbps
Signal support	CAN_H, CAN_L, GND
Isolation voltage	3750Vrms
Termination resistor	120 ohm selected by jumper
Connectors	DB15 Male
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 100mA, 12VDC at 100mA typical
Working temperature	0 to 60˚C

PCE-C122D

2-Port Isolated CAN Bus Card



Features

- PCI Express x1 compliant
- Low profile form factor
- CAN 2.0 A,B Protocol
- Two independent CAN communication operation
- Up to 1 Mbit/s programmable transfer rate on each port
- 120 ohm termination resistor selected by jumper

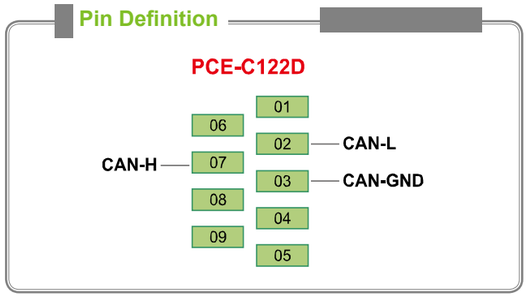
Ordering information

- **PCE-C122D**
  2-port isolated CAN card with DB9 connector

Software Supporting

- **Windows 2000/XP/7/10 WDM and Linux driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000/XP/7 platform with DLL
- **DeviceNet DLL supported by request**

Pin Definition

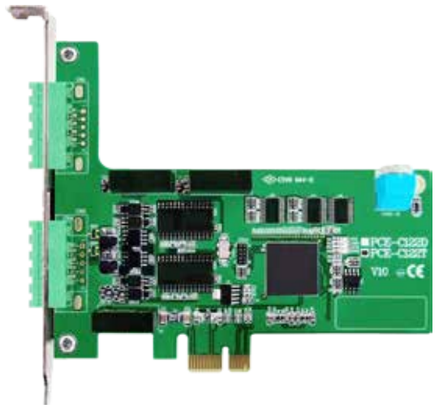


Specifications

CAN	
Number of port	2
CAN controller	SJA1000
Protocol	CAN 2.0 A,B
Speed	1Mbps
Signal support	CAN_H, CAN_L, GND
Isolation voltage	3750Vrms
Termination resistor	120 ohm selected by jumper
Connectors	DB9 Male
General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 100mA, 12VDC at 100mA typical
Working temperature	0 to 60˚C

PCE-C122T

2-Port Isolated CAN Bus Card



Features

- PCI Express x1 compliant
- CAN 2.0 A,B Protocol
- Two independent CAN communication operation
- Direct memory mapping to the CAN controllers
- Up to 1 Mbit/s programmable transfer rate on each port
- 120 ohm termination resistor selected by jumper

Ordering information

- **PCE-C122T**
  2-port isolated CAN card with 5-pin Terminal Block

Software Supporting

- **Windows 2000/XP/7/10 WDM and Linux driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000/XP/7 platform with DLL
- **DeviceNet DLL supported by request**

Pin Definition

PCE-C122T

01	CAN-GND
02	CAN-L
03	
04	CAN-H
05	

Specifications

CAN	
Number of port	2
CAN controller	SJA1000
Protocol	CAN 2.0 A,B
Speed	1Mbps
Signal support	CAN_H, CAN_L, GND
Isolation voltage	3750Vrms
Termination resistor	120 ohm selected by jumper
Connectors	5 pin TB

General	
Specifications	1-lane 2.5 Gb/s PCI Express
Power consumption	3.3VDC at 100mA, 12VDC at 100mA typical
Working temperature	0 to 60˚C

NOTES

SmartPAC

Table of **Contents**

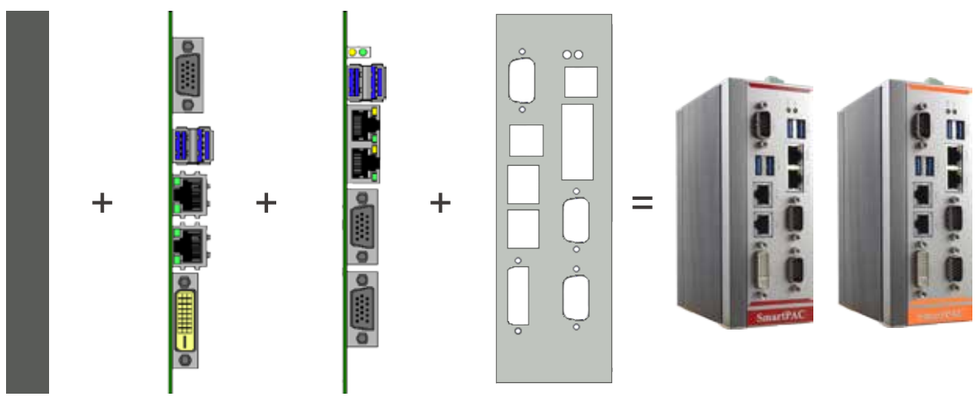
SmartPAC Features

Utilizing the Intel® CoreTM i5-6300U and Intel®Pentium®Processor N3710, SmartPAC is a powerful Programmable Automation Controller. With fan-less design, small footprint and wide operating temperatures 0°C to 50°C(32 to 122°F), SmartPAC provides high performance and high versatility.The fan-less design make SmartPAC easy to install in field cabinets. By connecting different extension boards, users can get very flexible I/O choices to support vertical application requirements.TPM can help users customize the label sticker and front panel, which make SmartPAC an easy customization product.

SmartPAC provides system integrators with optimized solutions. By AES encryption system, users can secure the domain know-how in the computer. Users can get cost-effective and tailored embedded system from SmartPAC. It an ultra-reliable system that can operate in the most demanding of industrial environment.

Architecture

SmartPAC = Heat sink + TPM899 / TPM915 MB + SPE-1xx's SUMIT add-on card +SSD-OS + Chassis + Front panel



Mother Board

TPM899

TPM915

SUMIT ITA and SUMIT ITB

SUMIT ITA

- Two PCI-Express x1
- Two USB2.0
- Two USB3.0

SUMIT ITB

- One PCI-Express x1
- One PCI-Express x4

SUMIT Add-on Card

SPE-L121D-2PA

SPE-L122D-CSM

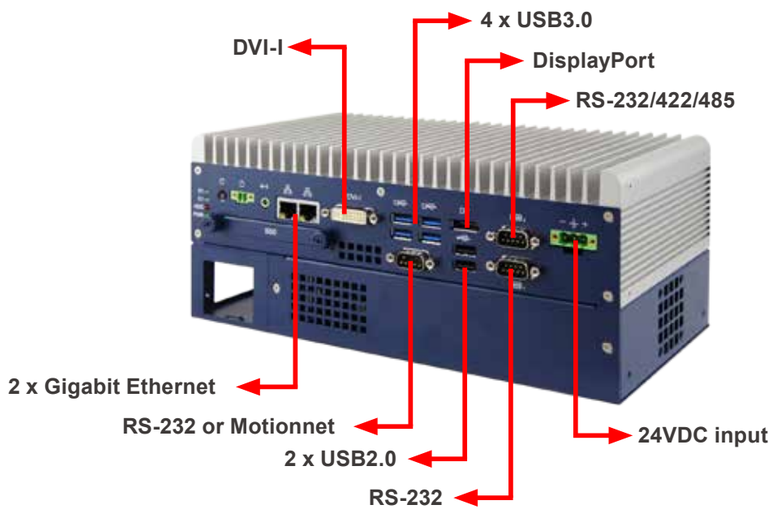
TurboPAC

The TurboPAC is applicable to industrial automation, multi-axis aligner, robot control, general controller, such as motion control, digital input and output control and camer control. It is a robust, compact and fan-less design with Intel® 7th / 6th Generation Core™ i7 / i5 / i3 desktop processor. This product series also features iSmart that allows the device capable of auto-scheduling for general applications and gives energy savings on power. It can be operated at the ambient operating temperature ranging from 0 ~ 60 °C with airflow, and even from 0 ~ 80 °C for storage.

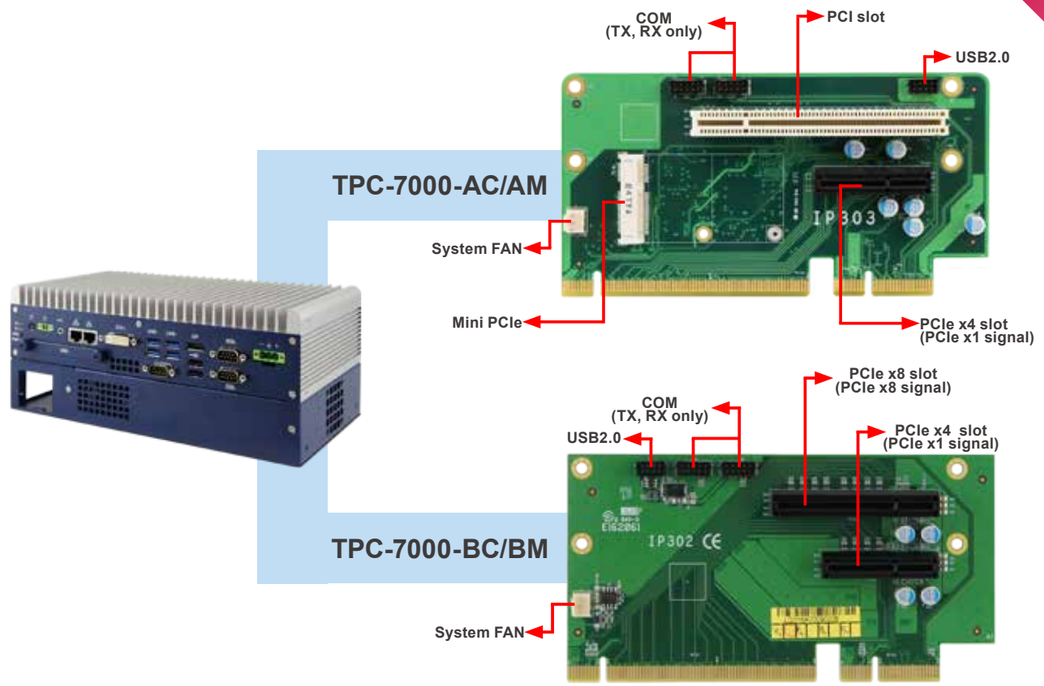
TurboPAC also supports various PCI/PCIe cards. With different riser card, it is possible to have PCI interface, PCIe interface and Mini PCIe interface. Customers can choose the suitable model type for their requirement. Motionnet® protocol is also included in the specific model name.

Features

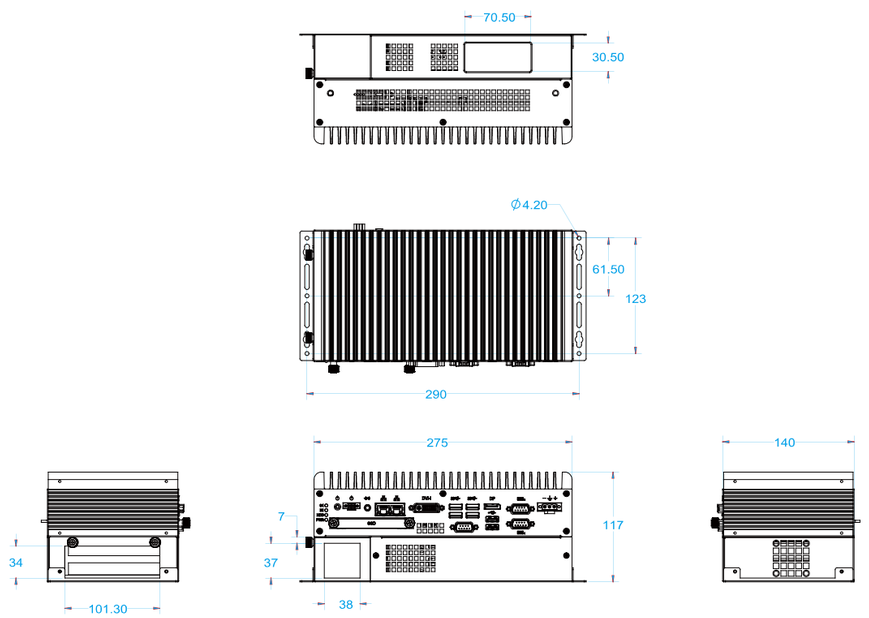
I/O Connectors



Riser Cards



Dimension



SPC System

□□□ - □ □ □ □ - □□□

PAC Series
S: SmartPAC
T: TurboPAC

CPU Level
3000: Intel® Pentium™ N3710
6000: Intel® Core™ i5-6300U
7000: Intel® Core™ 7th/6th Generation

Model Name
SPC-3221
SPC-3212
SPC-3204D
SPC-6221
SPC-6212
SPC-6204D
TPC-7000-AC/AM
TPC-7000-BC/BM
TPC-7200-i7-BEW-A4
TPC-7200-i7-BEW-A8
TPC-7200-i7-BEW-A16
TPC-7200-i7-BEW-A32

SPC-3000 Series



Features Models		SPC-3221	SPC-3212	SPC-3204D
AES Secure IC		√	√	√
System	Operating system	Windows Em bedded Standard 7		
	CPU	Intel® Pentium® N3710	Intel® Pentium® N3710	Intel® Pentium® N3710
	Chipset	SOC	SOC	SOC
	BIOS	UEFI	UEFI	UEFI
	Memory	Dual Channel DDR3L SO-DIMM socket, Max. 8GB		
	Graphic chipset	Intel® HD Graphics 405	Intel® HD Graphics 405	Intel® HD Graphics 405
	Power mode	AT/ATX	AT/ATX	AT/ATX
	Input voltage	24VDC input	24VDC input	24VDC input
I/O interface	Dual display	VGA and DVI-D	VGA and DVI-D	VGA and DVI-D
	Serial port RS-232	5 RS-232	1 RS-232	5 RS-232
	Serial port RS-232 / 422 / 485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	RS-485	-	-	2 RS-485
	LAN	2 Intel® I211-AT	2 Intel® I211-AT	2 Intel® I211-AT
	USB	4 external , 1 internal	7 external , 1 internal	6 external , 1 internal
	PoE	-	2 Intel® I350AM2	-
	Analog output	-	4 Ch.	-
	GPIO	8 DI / 8 DO	4 DI / 4 DO	8 DI / 8 DO
	Storage	HDD/SSD, mSATA SSD	mSATA SSD, Cfast	mSATA SSD, Cfast
Motionnet®	Number of ring	2	1	-
	Number of slaves	Max. 128 slaves	Max. 64 slaves	-
	Transmission speed	Max. 20Mbps	Max. 20Mbps	-
Mechanical	Dimension	62 x 160 x 115 mm (W x H x D)		
	Weight	1.38 Kg	1.38 Kg	1.38 Kg
	Construction	Aluminum chassis	Aluminum chassis	Aluminum chassis
Environment	Operating temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C
	Storage temperature	-20°C to 80°C	-20°C to 80°C	-20°C to 80°C
	Humidity	90% (non-condensing @ 60°C)		
Software	Real-time OS	INtime®	INtime®	INtime®
	Motionnet® utility	MyLink	MyLink	MyLink
	EtherCAT utility	ECATNavi	ECATNavi	ECATNavi
Page number		P.175	P.177	P.179

SPC-6000 Series



Features Models		SPC-6221	SPC-6212	SPC-6204D
AES Secure IC		√	√	√
System	Operating system	Windows Embedded Standard 7		
	CPU	Intel®Core®i5-6300U	Intel®Core®i5-6300U	Intel®Core®i5-6300U
	Chipset	SOC	SOC	SOC
	BIOS	UEFI	UEFI	UEFI
	Memory	Dual Channel DDR4 SO-DIMM socket, Max. 16GB		
	Graphic chipset	Intel®HD Graphics 520	Intel®HD Graphics 520	Intel®HD Graphics 520
	Power mode	AT/ATX	AT/ATX	AT/ATX
	Input voltage	24VDC input	24VDC input	24VDC input
I/O interface	Dual display	VGA and DVI-D	VGA and DVI-D	VGA and DVI-D
	Serial port RS-232	5 RS-232	1 RS-232	5 RS-232
	Serial port RS-232 / 422 / 485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	RS-485	-	-	2 RS-485
	LAN	2 Intel® I211-AT	2 Intel® I211-AT	2 Intel® I211-AT
	USB	4 external , 1 internal	7 external , 1 internal	6 external , 1 internal
	PoE	-	2 Intel® I350AM2	-
	Analog output	-	4 Ch.	-
	GPIO	8 DI / 8 DO	4 DI / 4 DO	8 DI / 8 DO
	Storage	HDD/SSD, mSATA SSD	mSATA SSD, Cfast	mSATA SSD, Cfast
Motionnet®	Number of ring	2	1	-
	Number of slaves	Max. 128 slaves	Max. 64 slaves	-
	Transmission speed	Max. 20Mbps	Max. 20Mbps	-
Mechanical	Dimension	62 x 160 x 115 mm (W x H x D)		
	Weight	1.38 Kg	1.38 Kg	1.38 Kg
	Construction	Aluminum chassis	Aluminum chassis	Aluminum chassis
Environment	Operating temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C
	Storage temperature	-20°C to 80°C	-20°C to 80°C	-20°C to 80°C
	Humidity	90% (non-condensing @ 60°C)		
Software	Real-time OS	INtime®	INtime®	INtime®
	Motionnet® utility	MyLink	MyLink	MyLink
	EtherCAT utility	ECATNavi	ECATNavi	ECATNavi
Page number		P.181	P.183	P.185

NOTES

1-1 SPC System

SPC-3221

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Pentium® N3710 Processor
- Support Real-time Operating System
- Support Dual channel DDR3L SO-DIMM, Max. 8GB
- Support Storage with HDD/SSD and mSATA SSD
- Support DVI-I Dual display
- 2 Rings of Motionnet®Master, Max. 128 slaves
- Intel® I211-AT Gigabit Ethernet port x 2
- 5 x RS-232 and 1 x RS-232 / 422 / 485
- GPIO with 8 DI and 8 DO
- Hardware IC with unique ID

Ordering information

- **SPC-3221**
  Intel® Pentium® N3710 Processor
  2-Ring Motionnet® Master
  5 x COM ports, 2 x LAN ports, 5 x USB ports
- **Y cable from DB15 to Two DB9 MM**
  DB15 - DB9M+DB9M, 0.5M
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

System	
Operating system	Windows Embedded Standard 7 32/64 bit
AES Secure IC	Unique ID for project encryption
CPU	Intel® Pentium® N3710 Processor,1.6GHz/2.56GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR3L SO-DIMM socket with 1600 MHz, Max. 8GB
Graphic chipset	Intel® HD Graphics 405
Power mode	AT / ATX ; 2-pin Remote Power on/off switch
Input voltage	24VDC input

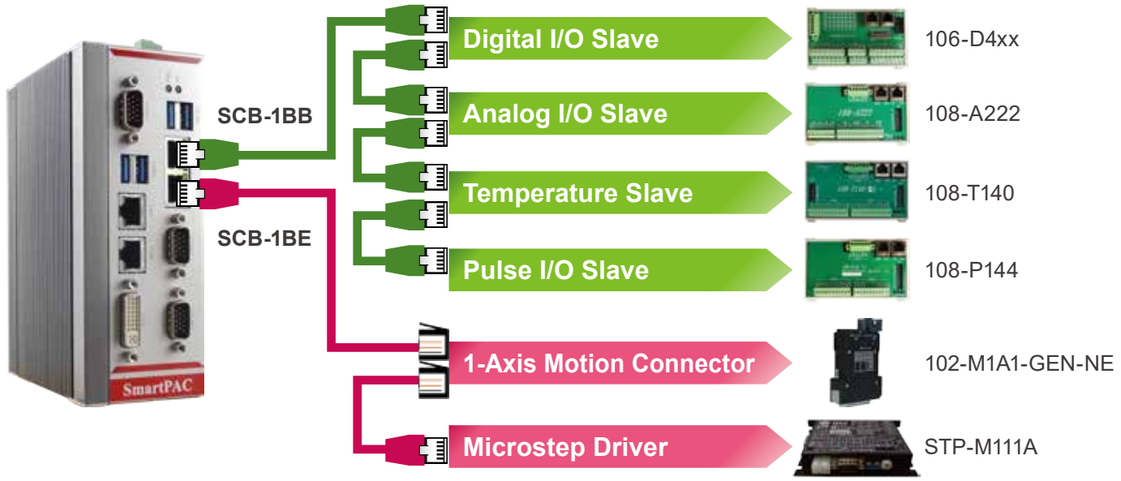
I/O Interface	
Display	VGA: up to 1920 x 1200 ; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0 ; 1 x internal USB for Keypro
Serial port	5 x RS-232 ; 1 x RS-232/422/485
LAN	Intel® I211-AT, 10/100/1000 Mbps
GPIO	Isolated 8 DI + 8 DO
Storage	1 x mSATA SSD; 1 x 2.5" HDD/SSD (Option)

Motionnet®	
Number of ring	2
Slaves	Max. 128 slaves
Transmission speed	Max.20Mbps

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0°C ~ 50°C (32°F ~ 122°F)
Storage temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring



1-1 SPC System

SPC-3212

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Pentium® N3710 Processor
- Support Real-time Operating System
- Support Dual channel DDR3L SO-DIMM, Max. 8GB
- Support Storage with mSATA SSD
- Support DVI-I Dual display
- 1 Ring of Motionnet®Master, Max. 64 slaves
- 2 x PoE ports for camera
- Intel® I211-AT Gigabit Ethernet port x 2
- 1 x RS-232 and 1 x RS-232 / 422 / 485
- GPIO with 4 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **SPC-3212**
  Intel® Pentium® N3710 Processor
  1-Ring Motionnet® Master
  2 x PoE ports, 2 x COM ports, 2 x LAN ports
- **Y cable from DB15 to Two DB9 FM**
  DB15 - DB9F+DB9M, 0.5M
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

System	
Operating system	Windows Embedded Standard 7 32/64 bit
AES Secure IC	Unique ID for project encryption
CPU	Intel® Pentium® N3710 Processor, 1.6GHz/2.56GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR3L SO-DIMM socket with 1600 MHz, Max. 8GB
Graphic chipset	Intel® HD Graphics 405
Power mode	AT / ATX ; 2-pin Remote Power on/off switch
Input voltage	24VDC input

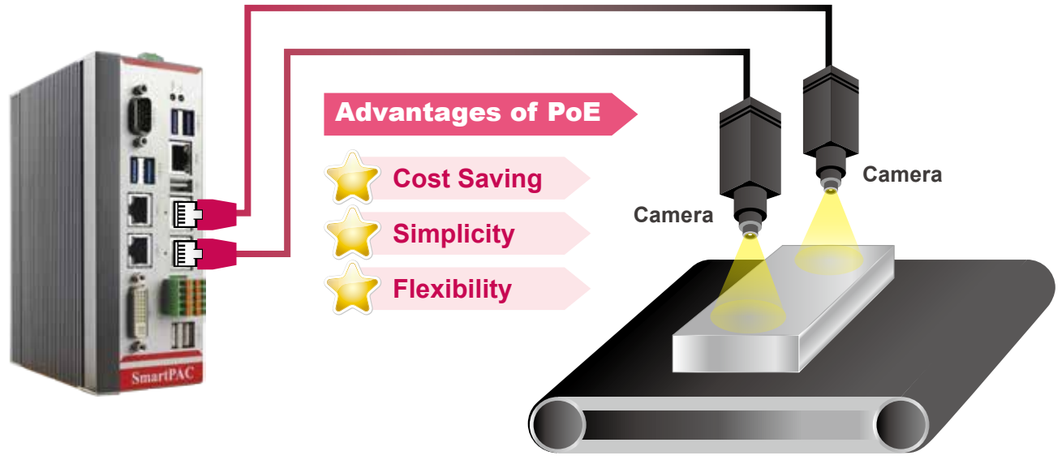
I/O Interface	
Display	VGA: up to 1920 x 1200 ; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0 ; 3 x external USB 2.0 ; 1 x internal USB for Keypro
Serial port	1 x RS-232 ; 1 x RS-232/422/485
LAN	Intel® I211-AT, 10/100/1000 Mbps
PoE	2 x PoE ports
Analog output	4-Ch.
GPIO	Isolated 4 DI + 4 DO
Storage	1 x mSATA SSD

Motionnet®	
Number of ring	1
Slaves	Max. 64 slaves
Transmission speed	Max. 20Mbps

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0°C ~ 50°C (32°F ~ 122°F)
Storage temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring



1-1 SPC System

SPC-3204D

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Pentium® N3710 Processor
- Support Dual channel DDR3L SO-DIMM, Max. 8GB
- Support Storage with mSATA SSD
- Support external C-Fast x 1
- Support DVI-I Dual display
- Intel® I211-AT Gigabit Ethernet port x 2
- 5 x RS-232, 1 x RS-232 / 422 / 485 and 2 x RS485
- Isolated digital with 8 DI and 8 DO

Ordering information

- **SPC-3204D**
  Intel® Pentium® N3710 Processor
  6 x COM ports, 2 x RS-485 ports
  2 x LAN ports, (6+1) x USB ports
  Isolated 8 DI and 8 DO
- **Y cable from DB15 to Two DB9 FM**
  DB15 - DB9F+DB9M, 0.5M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX

Specifications

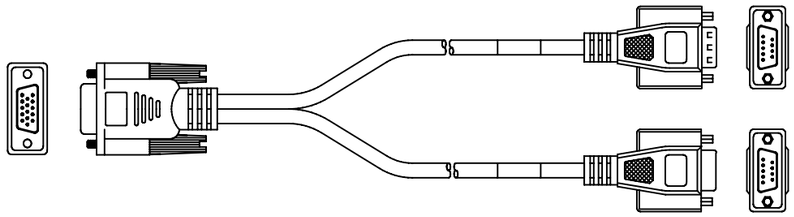
System	
Operating system	Windows Embedded Standard 7 32/64 bit
CPU	Intel® Pentium® N3710 Processor, 1.6GHz/2.56GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR3L SO-DIMM socket with 1600MHz, Max. 8GB
Graphic chipset	Intel® HD Graphics 405
Power mode	AT / ATX ; 2-pin Remote Power on/off switch
Input voltage	24VDC input
I/O Interface	
Display	VGA: up to 1920 x 1200 ; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0 ; 2 x external USB 2.0 ; 1 x internal USB for Keypro
Serial port	5 x RS-232; 2 x RS485; 1 x RS-232/422/485
LAN	Intel® I211-AT, 10/100/1000 Mbps
GPIO	Isolated 8 DI + 8 DO
Storage	1 x mSATA SSD; 1 x C-Fast (Option)

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0°C ~ 50°C (32°F ~ 122°F)
Storage temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring

RS-485 **DB9 Male**



DB9 Female

Pin Definition of HD15 Female

COM Port	Pin NO.	RS-232	RS-422 (4-Wire)	RS-485 (2-Wire)
1	1	DCD	-	-
	2	RXD	-	-
	3	TXD	-	-
	4	DTR	-	-
	5	GND	-	-
	6	DSR	-	-
	7	RTS	-	-
	8	CTS	-	-
	9	RI	-	-
	10	-	-	-
COM Port	**Pin NO.**	**RS-232**	**RS-422 (4-Wire)**	**RS-485 (2-Wire)**
2	11	RXD	RXD+	-
	12	TXD	RXD-	-
	13	RTS	TXD+	DATA+
	14	CTS	TXD-	DATA-
	15	GND	GND	GND

Pin Definition of DB9 Male and DB9 Female

Pin NO.	Label	Description
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

1-1 SPC System

SPC-6221

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® CoreTM i5-6300U Processor
- Support Real-time Operating System
- Support Dual channel DDR4 SO-DIMM, Max. 16GB
- Support Storage with HDD/SSD and mSATA SSD
- Support DVI-I Dual display
- 2 Rings of Motionnet®Master, Max. 128 slaves
- Intel® I211-AT Gigabit Ethernet port x 2
- 5 x RS-232 and 1 x RS-232 / 422 / 485
- GPIO with 8 DI and 8 DO
- Hardware IC with unique ID

Ordering information

- **SPC-6221**
  Intel® CoreTM Processor i5-6300U
  2-Ring Motionnet® Master
  5 x COM ports, 2 x LAN ports, 5 x USB ports
- **Y cable from DB15 to Two DB9 FM**
  DB15 - DB9F+DB9M, 0.5M
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

System	
Operating system	Windows Embedded Standard 7 32 / 64 bit
AES Secure IC	Unique ID for project encryption
CPU	Intel® CoreTM Processor i5-6300U, 2.4GHz / 3.00GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR4 SO-DIMM socket with 2133MHz, Max. 16GB
Graphic chipset	Intel®HD Graphics 520
Power mode	AT / ATX; 2-pin Remote Power on / off switch
Input voltage	24VDC input

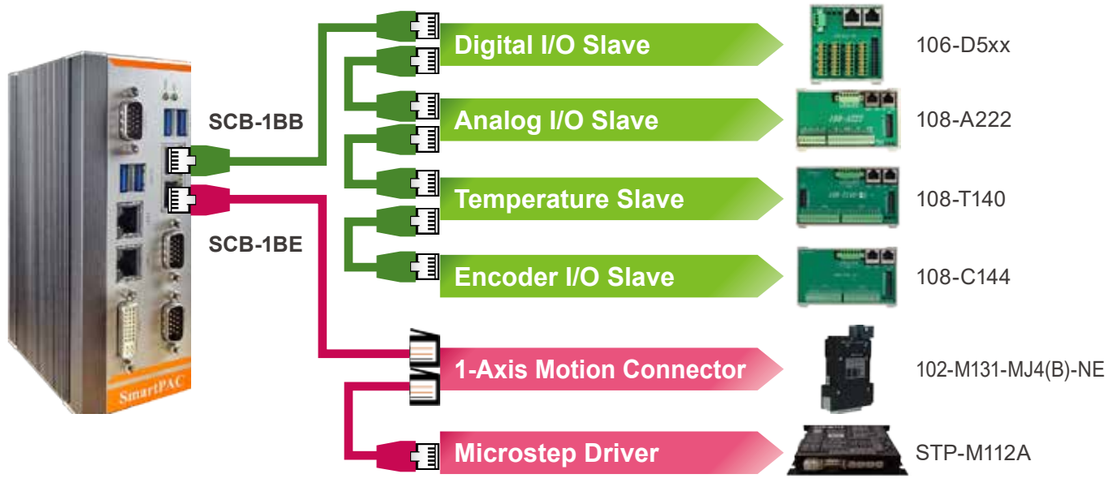
I/O Interface	
Display	VGA: up to 1920 x 1200; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0; 1 x internal USB for Keypro
Serial port	5 x RS-232; 1 x RS-232 / 422/485
LAN	Intel® I211-AT, 10 / 100 / 1000Mbps
GPIO	Isolated 8 DI + 8 DO
Storage	1 x mSATA SSD; 1 x 2.5" HDD / SSD (Option)

Motionnet®	
Number of ring	2
Slaves	Max. 128 slaves
Transmission speed	Max. 20Mbps

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0˚C to 50˚C (32°F to 122°F)
Storage temperature	-20˚C to 80˚C (-4°F to 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring



1-1 SPC System

SPC-6212

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® CoreTM i5-6300U Processor
- Support Real-time Operating System
- Support Dual channel DDR4 SO-DIMM, Max. 16GB
- Support Storage with mSATA SSD
- Support DVI-I Dual display
- 1 Ring of Motionnet®Master, Max. 64 slaves
- 2 x PoE ports for camera
- Intel® I211-AT Gigabit Ethernet port x 2
- 1 x RS-232 and 1 x RS-232 / 422 / 485
- GPIO with 4 DI and 4 DO
- Hardware IC with unique ID

Ordering information

- **SPC-6212**
  ntel® CoreTMProcessor i5-6300U
  1-Ring Motionnet® Master
  2 x PoE ports, 2 x COM ports, 2 x LAN ports
- **Y cable from DB15 to Two DB9 FM**
  DB15 - DB9F+DB9M, 0.5M
- **SCB-1BB-06A / 10A / 20A / 30A / 50A / A0A**
  CAT5 LAN cable, 0.6M / 1M / 2M / 3M / 5M / 10M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

Specifications

System	
Operating system	Windows Embedded Standard 7 32/64 bit
AES Secure IC	Unique ID for project encryption
CPU	Intel® CoreTM Processor i5-6300U, 2.4GHz/3.00GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR4 SO-DIMM socket with 2133MHz, Max. 16GB
Graphic chipset	Intel® HD Graphics 520
Power mode	AT / ATX; 2-pin Remote Power on/off switch
Input voltage	24VDC input

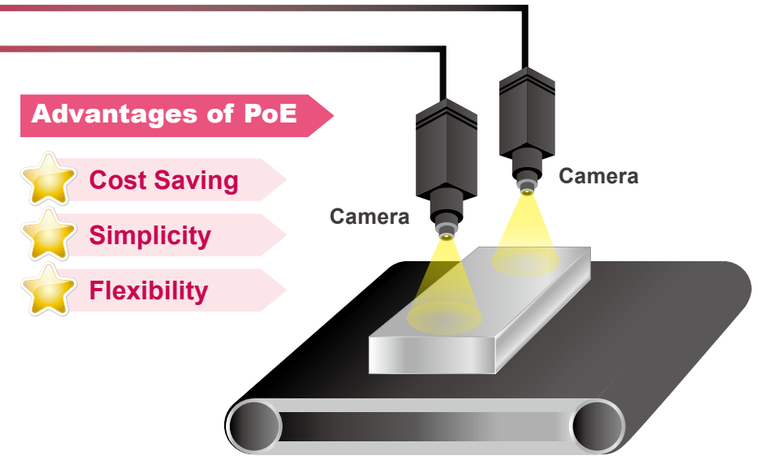
I/O Interface	
Display	VGA: up to 1920 x 1200; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0; 3 x external USB 2.0; 1 x internal USB for Keypro
Serial port	1 x RS-232; 1 x RS-232/422/485
LAN	Intel® I211-AT, 10/100/1000Mbps
PoE	2 x PoE ports
Analog output	4 Ch.
GPIO	Isolated 4 DI + 4 DO
Storage	1 x mSATA SSD; 1 x C-Fast (Option)

Motionnet®	
Number of ring	1
Slaves	Max. 64 slaves
Transmission speed	Max. 20Mbps

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0°C ~ 50°C (32°F ~ 122°F)
Storage temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring



1-1 SPC System

SPC-6204D

Programmable Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® CoreTM i5-6300U Processor
- Support Dual channel DDR4 SO-DIMM, Max. 16GB
- Support Storage with mSATA SSD
- Support external C-Fast x 1
- Support DVI-I Dual display
- Intel® I211-AT Gigabit Ethernet port x 2
- 5 x RS-232, 1 x RS-232 / 422 / 485 and 2 x RS485
- Isolated digital with 8 DI and 8 DO

Ordering information

- **SPC-6204D**
  Intel® CoreTM i5-6300U Processor
  6 x COM ports, 2 x RS-485 ports
  2 x LAN ports, (6+1) x USB ports
  Isolated 8 DI and 8 DO
- **Y cable from DB15 to Two DB9 FM**
  DB15 - DB9F+DB9M, 0.5M

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Real-time Operating System**
  INtime®, RTX

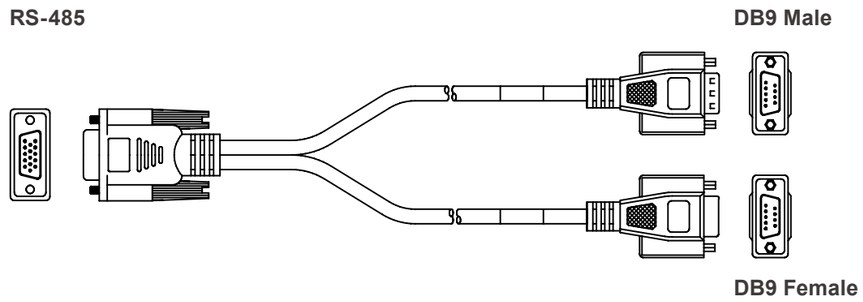
Specifications

System	
Operating system	Windows Embedded Standard 7 32/64 bit
CPU	Intel® CoreTM i5-6300U Processor,2.4GHz/3GHz (Boost)
Chipset	SOC
BIOS	UEFI
Memory	Dual Channel DDR4 SO-DIMM socket with 2133MHz, Max. 16GB
Graphic chipset	Intel® HD Graphics 520
Power mode	AT / ATX ; 2-pin Remote Power on/off switch
Input voltage	24VDC input
AES Secure IC	Unique ID for project encryption
I/O Interface	
Display	VGA: up to 1920 x 1200 ; DVI-D: up to 2560 x 1600
USB	4 x external USB 3.0 ; 2 x external USB 2.0 ; 1 x internal USB 2.0 for Keypro
Serial port	5 x RS-232 ; 2 x RS485 ; 1 x RS-232/422/485
LAN	Intel® I211-AT, 10/100/1000Mbps
GPIO	Isolated 8 DI + 8 DO
Storage	1 x mSATA SSD ; 1 x C-Fast (Option)

Mechanical	
Dimensions	62 x 160 x 115 mm (W x H x D)
Weight	1.38 Kg
Construction	Aluminum chassis with fan-less design

Environment	
Operating temperature	0°C ~ 50°C (32°F ~ 122°F)
Storage temperature	-20°C ~ 80°C (-4°F ~ 176°F)
Humidity	90% (non-condensing @ 60°C)

Wiring



Pin Definition of HD15 Female				
COM Port	**Pin NO.**	**RS-232**	**RS-422 (4-Wire)**	**RS-485 (2-Wire)**
1	1	DCD	-	-
	2	RXD	-	-
	3	TXD	-	-
	4	DTR	-	-
	5	GND	-	-
	6	DSR	-	-
	7	RTS	-	-
	8	CTS	-	-
	9	RI	-	-
	10	-	-	-
COM Port	**Pin NO.**	**RS-232**	**RS-422 (4-Wire)**	**RS-485 (2-Wire)**
2	11	RXD	RXD+	-
	12	TXD	RXD-	-
	13	RTS	TXD+	DATA+
	14	CTS	TXD-	DATA-
	15	GND	GND	GND

Pin Definition of DB9 Male and DB9 Female		
Pin NO.	**Label**	**Description**
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

TPC-7000 Series

Features Models		TPC-7000-AC/AM	TPC-7000-BC/BM
AES Secure IC		-	-
System	Operating system	Windows Embedded Standard 7/10	
	CPU	7th/6th Gen Intel® Core i7/i5/i3 desktop processors,up to 3.4GHz	
	Chipset	Intel® Q170	Intel® Q170
	BIOS	AMI BIOS	AMI BIOS
	Memory	2x DDR4-2133 SO-DIMM, Max. 32GB	
	Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min	
	iSmart	Yes	Yes
	iAMT	11.6	11.6
	Power mode	1 power buttton/ 2-pin terminal block for external power	
	Input voltage	24VDC input (3-pin terminal block)	
I/O interface	Dual display	DVI-I and DisplayPort	DVI-I and DisplayPort
	Serial port RS-232	1 RS-232 for COM#2	
	Serial port RS-232 / 422 / 485	1 RS-232 / 422 / 485 for COM#1	
	SATA	2 SATA III connector	2 SATA III connector
	LAN	1 Intel® I211-AT GbE ; 1 Intel® I219-LM GbE PHY	
	USB	4 USB3.0 and 2 USB2.0	
	Audio Jack	1 Line-Out	1 Line-Out
	GPIO	4 DI and 4 DO (Optional)	4 DI and 4 DO (Optional)
	Storage	2x 2.5" SSD/HDD* + 1x mSATA socket	
Expansion	Mini PCIe	2 Mini PCIe (-A) 1 Mini PCIe (-AM)	1 Mini PCIe (-B)
	PCI / PCIe	1 PCI and 1 PCIe x1	1 PCIe x8 and 1 PCIe x1
	Motionnet®	1 (-AM)	1 (-BM)
Mechanical	Dimension	275 x 117 x 140 mm (W x H x D)	
	Weight	2.7Kg	2.7Kg
	Construction	Aluminum & Steel	Aluminum & Steel
	Mounting	Desktop or wall mounting (wall mount kit included) Side mounting (Option) DIN-rail mounting (Option)	
Environment	Operating temperature	0°C to 60°C (14°F~140°F)*With Air flow 0°C to 50°C (14°F to 122°F) without Air flow	
	Storage temperature	5 ~ 90% at 45 °C (non-condensing)	
	Humidity	90% (non-condensing @ 60°C)	
Software	Motionnet® utility	MyLink	MyLink
Page number		P.189	P.191

*The first one is external and installed by default; and the second one is internal for option.

NOTES

2-1 TPC System

TPC-7000-AC
TPC-7000-AM

Programmable

Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Core® i7/i5/i3 Desktop Processor
- Support DDR4-2133 SO-DIMM, Max. 32GB
- Support storage with SSD/HDD and mSATA
- Support RAID 0/1
- Support Watchdog, iSmart, and iAMT
- Support DVI-I and DisplayPort
- Support Mini PCIe, PCI and PCIe x1
- Intel® I211-AT and Intel® I219-LM Gigabit Ethernet port
- 1 x RS-232 and 1 x RS-232/422/485
- Digital with 4 DI and 4 DO (Option)

Ordering information

- **TPC-7100-AC / TPC-7100-AM**
  CPU with i7-6700TE: w. COM / w. Motionnet®
- **TPC-7300-AC / TPC-7300-AM**
  CPU with i5-6500TE: w. COM / w. Motionnet®
- **TPC-7500-AC / TPC-7500-AM**
  CPU with i3-6100TE: w. COM / w. Motionnet®
- **TPC-7200-AC / TPC-7200-AM**
  CPU with i7-7700T: w. COM / w. Motionnet®
- **TPC-7400-AC / TPC-7400-AM**
  CPU with i5-7500T: w. COM / w. Motionnet®
- **TPC-7600-AC / TPC-7600-AM**
  CPU with i3-7101TE: w. COM / w. Motionnet®

Specifications

System

Operating system	Windows Embedded Standard 7/10
CPU	Intel® Core® i7/i5/i3 Desktop Processor
Chipset	Intel® Q170
BIOS	AMI BIOS
Memory	DDR4-2133 SO-DIMM,Max. 32GB
Watchdog	Watchdog Timer 256 segments
iSmart / iAMT	Yes / 11.6
Power mode	1 x power button ; 2-pin terminal block for external power
Input voltage	24VDC input (3-pin terminal block)

I/O Interface

Display	DVI-I and DisplayPort
USB	4 x USB 3.0 ; 2 x USB 2.0
Serial port (DB-15)	1 x RS-232 ; 1 x RS-232/422/485

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

I/O Interface

LAN	1 Intel® I211-AT ; 1 Intel® I219-LM
GPIO	4 DI and 4 DO (Option)
Storage	2 x 2.5" SSD / HDD* ; 1 x mSATA
Audio jack	1 x Line-Out

Expansion

Mini PCIe	2 x Mini PCIe (-AC) ; 1 x Mini PCIe (-AM)
PCI / PCIe	1 PCI and 1 PCIe x1
Motionnet® (DB-9)	1 (-AM)

Mechanical

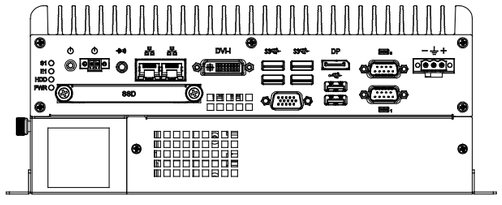
Dimension	275 x 117 x 140 mm (W x H x D)
Weight	2.7Kg
Construction	Aluminum & Steel
Mounting	Desktop or wall mounting (wall mount kit included) Side mounting (Option) DIN-rail mounting (Option)

Environment

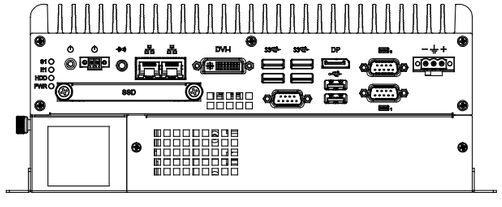
Operating temperature	0°C to 60°C (14°F~140°F)*With Air flow 0°C to 50°C (14°F to 122°F) without Air flow
Storage temperature	5 ~ 90% at 45 °C (non-condensing)
Humidity	90% (non-condensing @ 60°C)

- **IP303**

- **TPC-7000-AC (DB-15)**



- **TPC-7000-AM (DB-9)**



DB-15 Pin Define

Pin	Label	Pin	Label
1		9	
2	RXD1	10	
3	TXD1	11	RXD2
4		12	TXD2
5		13	
6		14	
7		15	
8		-	

DB-9 Pin Define

Pin	Label	Pin	Label
1		6	
2	D-	7	D+
3		8	
4		9	
5		-	

2-1 TPC System

TPC-7000-BC
TPC-7000-BM

Programmable
Automation Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Core® i7/i5/i3 Desktop Processor
- Support DDR4-2133 SO-DIMM, Max. 32GB
- Support storage with SSD/HDD and mSATA
- Support RAID 0/1
- Support Watchdog, iSmart, and iAMT
- Support DVI-I and DisplayPort
- Support Mini PCIe, PCIe x8 and PCIe x1
- Intel® I211-AT and Intel® I219-LM Gigabit Ethernet port
- 1 x RS-232 and 1 x RS-232/422/485
- Digital with 4 DI and 4 DO (Option)

Ordering information

- **TPC-7100-BC / TPC-7100-BM**
  CPU with i7-6700TE: w. COM / w. Motionnet®
- **TPC-7300-BC / TPC-7300-BM**
  CPU with i5-6500TE: w. COM / w. Motionnet®
- **TPC-7500-BC / TPC-7500-BM**
  CPU with i3-6100TE: w. COM / w. Motionnet®
- **TPC-7200-BC / TPC-7200-BM**
  CPU with i7-7700T: w. COM / w. Motionnet®
- **TPC-7400-BC / TPC-7400-BM**
  CPU with i5-7500T: w. COM / w. Motionnet®
- **TPC-7600-BC / TPC-7600-BM**
  CPU with i3-7101TE: w. COM / w. Motionnet®

Specifications

System

Operating system	Windows Embedded Standard 7/10
CPU	Intel® Core® i7/i5/i3 Desktop Processor
Chipset	Intel® Q170
BIOS	AMI BIOS
Memory	DDR4-2133 SO-DIMM, Max. 32GB
Watchdog	Watchdog Timer 256 segments
iSmart / iAMT	Yes / 11.6
Power mode	1 x power button ; 2-pin terminal block for external power
Input voltage	24VDC input (3-pin terminal block)

I/O Interface

Display	DVI-I and DisplayPort
USB	4 x USB 3.0 ; 2 x USB 2.0
Serial port (DB-15)	1 x RS-232 ; 1 x RS-232/422/485

Software Supporting

- **Windows 2000 / XP / 7 / 10 WDM driver**
  Support Visual C/C++, C#, Microsoft .NET Framework programming on Windows 2000 / XP / 7 / 10 platform with DLL
- **Motionnet® utility**
  MyLink for diagnosis of Motionnet® slave devices

I/O Interface

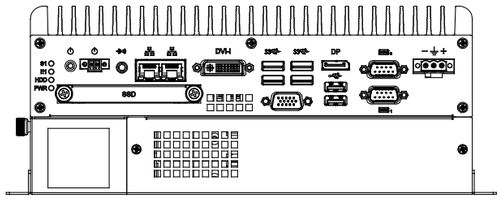
LAN	1 Intel® I211-AT ; 1 Intel® I219-LM
GPIO	4 DI and 4 DO (Option)
Storage	2 x 2.5" SSD / HDD* ; 1 x mSATA
Audio jack	1 x Line-Out

Expansion

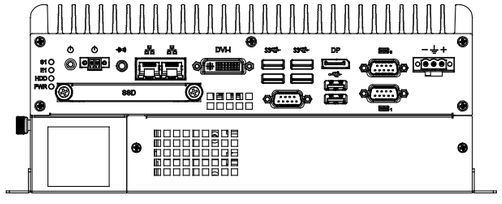
Mini PCIe	1 x Mini PCIe (-BC)
PCI / PCIe	1 PCIe x8 and 1 PCIe x1
Motionnet® (DB-9)	1 (-BM)

- **IP302**

- **TPC-7000-BC (DB-15)**



- **TPC-7000-BM (DB-9)**



Mechanical

Dimension	275 x 117 x 140 mm (W x H x D)
Weight	2.7Kg
Construction	Aluminum & Steel
Mounting	Desktop or wall mounting (wall mount kit included) Side mounting (Option) DIN-rail mounting (Option)

Environment

Operating temperature	0°C to 60°C (14°F~140°F)*With Air flow 0°C to 50°C (14°F to 122°F) without Air flow
Storage temperature	5 ~ 90% at 45 °C (non-condensing)
Humidity	90% (non-condensing @ 60°C)

DB-15 Pin Define

Pin	Label	Pin	Label
1		9	
2	RXD1	10	
3	TXD1	11	RXD2
4		12	TXD2
5		13	
6		14	
7		15	
8		-	

DB-9 Pin Define

Pin	Label	Pin	Label
1		6	
2	D-	7	D+
3		8	
4		9	
5		-	

TPC-7200-i7-BEW

WMX3 EtherCAT Soft Motion Controller

Features

- Robust and Flexible Fanless Embedded System
- Support Intel® Core® i7 Desktop Processor
- Support DDR4-2133 SO-DIMM, Max. 32GB
- Support storage with SSD/HDD
- Support RAID 0/1

Ordering information

- **TPC-7200-i7-BEW-A4**
  i7-7700T w.WMX3 EtherCAT 4-Axis SoftMotion
- **TPC-7200-i7-BEW-A8**
  i7-7700T w.WMX3 EtherCAT 8-Axis SoftMotion
- **TPC-7200-i7-BEW-A16**
  i7-7700T w.WMX3 EtherCAT 16-Axis SoftMotion
- **TPC-7200-i7-BEW-A32**
  i7-7700T w.WMX3 EtherCAT 32-Axis SoftMotion

Specifications

System	
Operating system	Windows 10 IoT 64
CPU	7th Gen Intel® Core™ i7 Desktop Processor
Chipset	Intel® Q170
BIOS	AMI BIOS
Memory	DDR4-2133 SO-DIMM, Max. 32GB
Power mode	1 x power button; 2-pin terminal block for external power
Input voltage	24VDC input (3-pin terminal block)
I/O Interface	
Display	DVI-I and DisplayPort
USB	4 x USB 3.0 ; 2 x USB 2.0
Serial port	1 x RS-232(DB9); 1 x RS-232/422/485(DB9); 2 x RS-232(DB15)
LAN	1 Intel® I219-LM
EtherCAT	1 Intel® I211-AT
Storage	2 x 2.5" SSD/HDD
Audio jack	1 x Line-Out
Expansion	
Mini PCIe	1 x Mini PCIe
PCI / PCIe	1 PCIe x8 and 1 PCIe x1

Mechanical	
Dimension	275 x 117 x 140 mm (W x H x D)
Weight	2.7Kg
Construction	Aluminum & Steel
Mounting	Desktop or wall mounting (wall mount kit included) Side mounting (Option) DIN-rail mounting (Option)

Environment	
Operating temperature	0°C to 60°C (14°F~140°F)* With Air flow 0°C to 50°C (14°F to 122°F) without Air flow
Storage temperature	5 ~ 90% at 45 °C (non-condensing)
Humidity	90% (non-condensing @ 60°C)

Software Supporting

Software configuration diagram

EcConfigurator

- Communication setting, status monitor tool
- Parameter upload / download via network
- Network diagnosis function, network topology display function

Wiring

PC based SoftMotion Configuration

Table of **Contents**

Accessories

2 Cables 201

Accessories for EtherCAT EZC Series

EZC-BS-210-0509

- Adaptor Socket
- Dimensions:
  L-53 x W-53 x H-12 mm

EZC-BS-010

- Bus Plate - 150mm
- Dimensions:
  L-25 x W-150 x H-5 mm

EZC-BS-020

- Bus Plate - 200mm
- Dimensions:
  L-25 x W-200 x H-5 mm

EZC-BS-C010L

- End Stop (L)
- Dimensions:
  L-17 x W-25 x H-7 mm

EZC-BS-C010R

- End Stop (R)
- Dimensions:
  L-17 x W-25 x H-7 mm

EZC-BS-C028

- Bus Cover with 8 pieces
- Dimensions:
  L-50 x W-80 mm

Terminal board Motionnet®

102-T1A1-HDB

Terminal board for general servo drive or stepping drive

- On-board connector type: 40-pin Box header, DSub 26 Pin
- Dimensions: L-77 x W-64 x H-49 mm

102-T1A1-DUM

Terminal board for general servo drive or stepping drive

- On-board connector type: 40-pin Box header
- Dimensions: L-77 x W-64 x H-47 mm

102-M101-DUM

Terminal board for machine I/O

- On-board connector type: 10-pin Box header
- Dimensions: L-77 x W-64 x H-43 mm

104-T110-DUM

Terminal board for General purpose

- On-board connector type: 20-pin SCSI-II
- Dimensions: L-77 x W-64 x H-48 mm

104-T304

Terminal board for 106-M304T

- On-board connector type: 20-pin Box header
- Dimensions: L-77 x W-64 x H-51 mm

104-TR216

NEW

2-CH Input and 16-CH Output Trigger Board

- On-board connector type: Pluggable Connector
- Dimensions: L-77 x W-64 x H-47 mm

107-T160-DUM

Terminal board for IO Card

- Dimensions: L-122 x W-66 x H-52mm

107-T160-DUMP

Terminal board for 4-axis

- Dimensions: L-122 x W-66 x H-52mm

107-T162-DUMG

Terminal board for 4-axis

- Dimensions: L-122 x W-84 x H-52mm

107-T142-GEN

Terminal board for 4-axis

- Dimensions: L-122 x W-104 x H-52mm

107-T161-DUM

Terminal board for 4-axis &I/O Card

- Dimensions: L-122 x W-157 x H-42mm

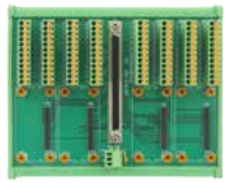
Terminal board for 4-Axis Motion

107-T121-GEN

Terminal board for 2-axis

- Dimensions: L-77 x W-123 x H-47mm

107-T141-GEN



Terminal board for 4-axis

- Dimensions: L-122 x W-157 x H-45mm

DB-T141-DAB

Delta B

- On-board connector type: 25-pin D-SUB
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-DA2

Delta A2/3

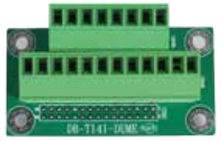
- On-board connector type: 50-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-HDB

General servo/stepping

- On-board connector type: 26-pin DSub
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-DUME



General servo/stepping Encoder

- On-board connector type: 8-pin/12-pin screw block
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-YS2

Yaskawa sigma II/V/VII

- On-board connector type: 50-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-PA4

Panasonic minas A4/A4/A6

- On-board connector type: 50-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-MJ3

Mitsubishi J3A/J4

- On-board connector type: 50-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-EZS

Fastech EziServo

- On-board connector type: 20-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

DB-T141-SAN

SanyoDenki Q/R Series

- On-board connector type: 50-pin SCSI-II
- Dimensions: L-22 x W-54 x H-22 mm

Cables

Y Cable from DB15 to Two DB9FM/MM

- DB15 - DB9F+DB9M
- DB15 - DB9M+DB9M
- Length: 0.5M

SCB-1BB-06A/10A/20A/30A/50A/A0A

- CAT5 / CAT5
- Length: 0.6M / 1M / 2M / 3M / 5M / 10M

SCB-1BE-06A/10A/20A/30A/50A*

- CAT5 / E-CON
- Length:0.6M / 1M / 2M / 3M / 5M

SCB-1EE-06A/10A/20A/30A/50A

- E-CON / E-CON
- Length: 0.6M / 1M / 2M / 3M / 5M

SCB-111-10A/20A/30A/50A

- SCSI 20 pin
- Length:1M / 2M / 3M / 5M

SCB-133-10B/20B/30B

- SCSI 50 pin
- Length: 1M / 2M / 3M

SCB-166-10A/20A/30A

- SCSI 100 pin
- Length:1M / 2M / 3M

SCB-191-10A/20A-EZS**

- DB 26 - SCSI 20 pin
- Length: 1M / 2M

SCB-192-10A/20A-FAS

- DB 26 - SCSI 26 pin
- Length:1M / 2M

SCB-193-10A/20A/30A/DA2/GEN/MJ3/YS5/A4/5***

- DB 26 - SCSI 50 pin
- Length: 1M / 2M / 3M

SCB-186-20A

- VHDCI 100-SCSI 100 pin
- Pin to pin
- Length:2M

SCB-2544-20A

- VHDCI 68-2*miniSCSI 68 pin
- Pin to pin
- Length:2M

*06A=0.6M / 10A=1M / 20A=2M / 30A=3M / 50A=5M ; **EZS=EziServo ;
***DA2=Delta A2 / GEN=Generic type / MJ3=Mitsubishi J3A / YS5=Yaskawa sigma V / PA4/5=Panasonic minas A4/A5

NOTES

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