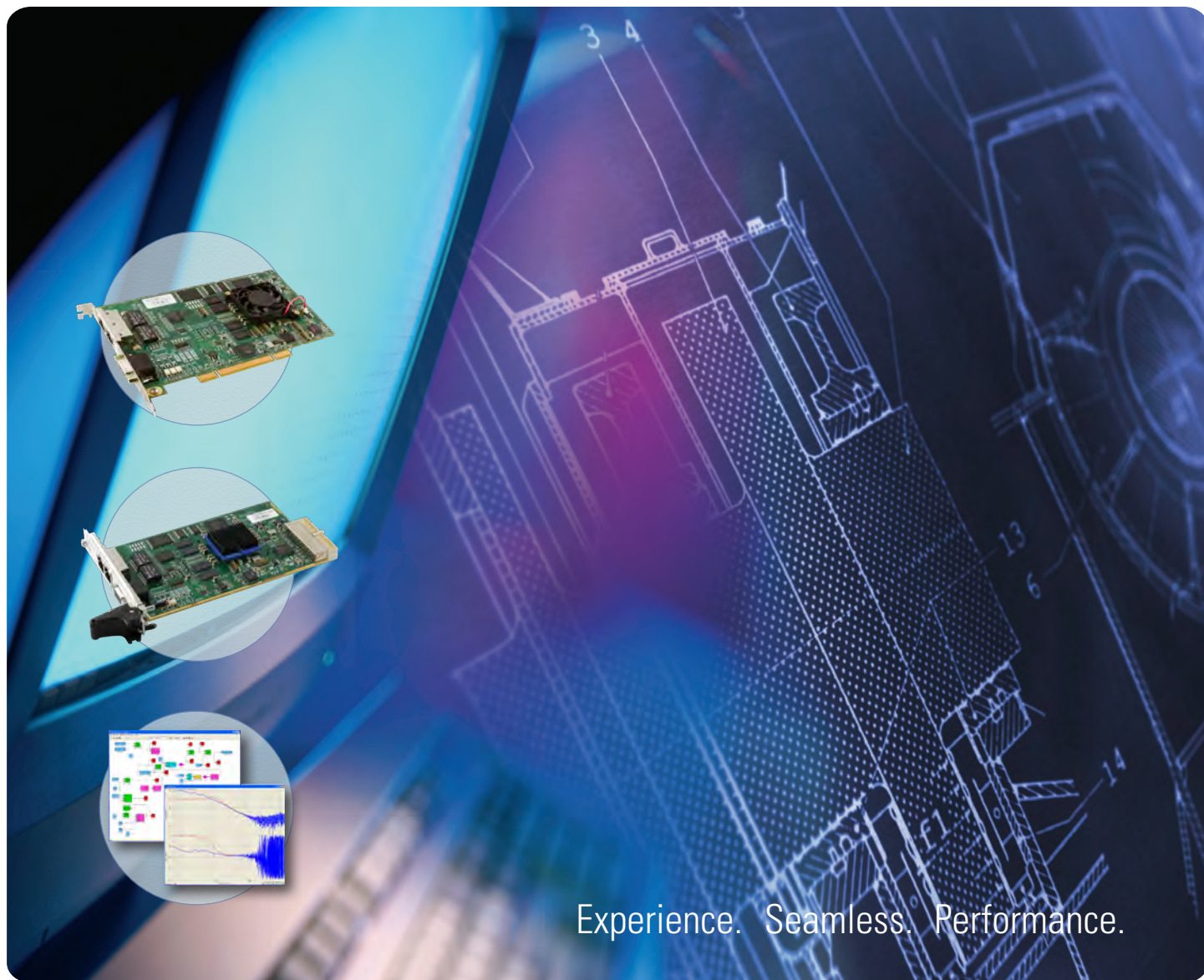


High Performance Motion Control

QMP-SynqNet Series Motion Controllers



Experience. Seamless. Performance.

KOLLMORGEN[®]

Because Motion Matters™

QMP-SynqNet Series Hardware Specification

Key Benefits

Increased Throughput

- Shared memory map architecture results in minimized controller latency for the fastest possible motion response and maximized machine throughput. On-the-fly motion and gain set modifications improve machine throughput by minimizing cycle and settling times.

Improved Flexibility

- Optimized to work with MechaWare and designed for machines with custom control needs or high-end control requirements.

Reduced System Costs

- Real-time operating system support reduces overall system cost by enabling deterministic usage of host processor for optimized machine design.

Reduced Development Costs

- Tight coordination between motion and I/O using the SynqNet network reduces machine development costs by providing real-time system visibility and motion optimization.

Ultra-Performance SynqNet Motion Controller

The QMP-SynqNet Series controllers provide machine builders with the ultimate in high-performance motion control. The 64-bit QMP controllers utilize a scalable PowerPC platform with speeds up to 1.2GHz for optimum flexibility and speed. With a significant increase in processing power, the QMP family of controllers are optimized to work with MechaWare™ for the ultimate in precision control schemes. Available in PCI, CPCI-3U, and PCIe form factors.

The QMP-SynqNet Series controllers offer servo update rates up to 48kHz, allowing optimum control of machines requiring high levels of coordination and synchronization between axes.

Develop motion applications for the QMP family of controllers with the MPI programming library for C/C++.

Decrease development costs with our MechaWare software tool by implementing your machine knowledge on the controller without custom control hardware or firmware.

SynqNet Platform Overview

Launched in 2001, SynqNet is a digital machine control network specifically designed to meet the flexibility, performance, and safety requirements of today's demanding machine control applications. Built on the 100BT physical layer, SynqNet provides a synchronous real-time connection between motion controllers, servo drivers, stepper drives, I/O modules, and custom devices.

FAST

- Network bandwidth for servo updates up to 48 kHz
- Supports up to 64 nodes with 64 axes
- Over 16,000 bits of digital I/O and 1,999 points of analog I/O
- Real-time diagnostics over SynqNet
- Gigabit ready for future SynqNet performance enhancements

SAFE

- "Self-Healing" fault tolerant operation using ring technology
- "HotReplace" allowing replacement of node without network shutdown

PROVEN

- Over 1,000,000 axes installed worldwide
- Multi-vendor interoperable network

SynqNet®
www.synqnet.org



**Motion
Controllers**



**Drives and
Motors**

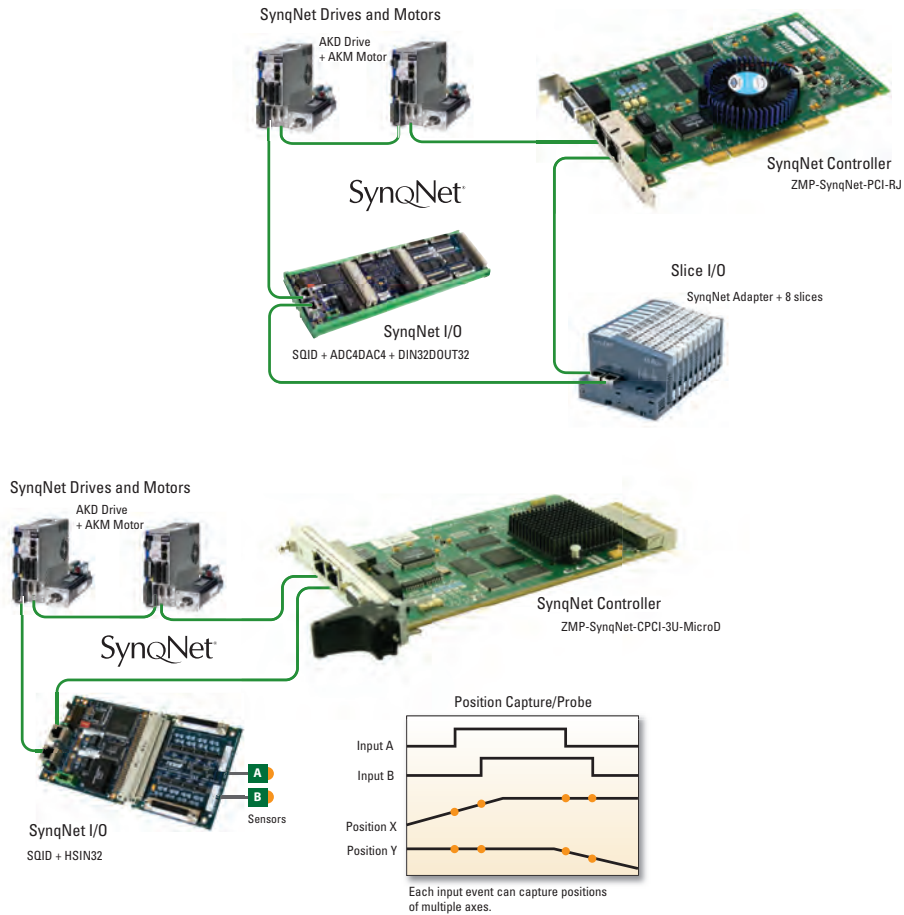


I/O



**Custom
Nodes**

SynqNet Connectivity Diagram



Part Numbers

Part Number	Description
T131-0001	QMP-SynqNet-PCI-RJ-1200
T131-0002	QMP-SynqNet-PCI-RJ-800
T131-0003	QMP-SynqNet-PCI-RJ-400
T134-0001	QMP-SynqNet-GB-CPCI-3U-RJ-1200
T134-0002	QMP-SynqNet-GB-CPCI-3U-RJ-800
T134-0003	QMP-SynqNet-GB-CPCI-3U-RJ-400
T135-0001	QMP-SynqNet-GB-PCIe-RJ-1200
T135-0002	QMP-SynqNet-GB-PCIe-RJ-800
T135-0003	QMP-SynqNet-GB-PCIe-RJ-400

QMP-SynqNet-PCI

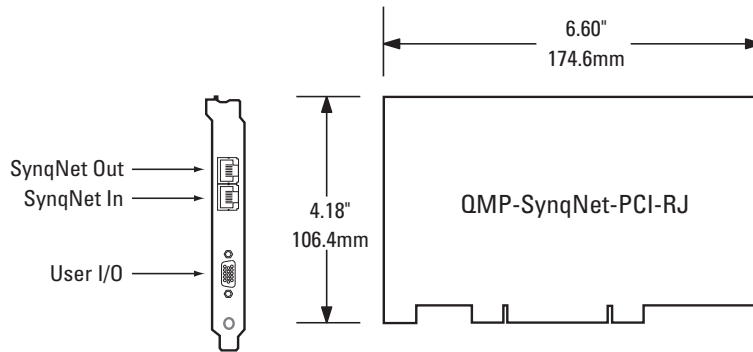


T131-0001
QMP-SynqNet-PCI-RJ-1200

Specifications

Function	Parameter	Specification
Processor	CPU	PowerPC e-500 core, 64-bit floating point 1200MHz (T131-0001) / 800MHz (T131-0002) / 400MHz (T131-0003)
	DRAM/FLASH	512MB/32MB
Servo Loop	Update Rate	User programmable
	4 Axes Update Rate	Max: 48 kHz
	20 Axes Update Rate	Max: 12 kHz
Board Interface	Connectors	SynqNet Interface: RJ45 User I/O: High Density D (15-pin)
	Form Factor	Standard PCI
	Host Bus	32-bit Universal PCI
	PCI Bus Speed	0 - 66MHz
	Memory Interface	32-bit direct memory map
	Power	Typ. 5V @ 3.2A Typ. 12V @ 0.1A (required for fan operation)
User I/O	Lines	3 Inputs; 3 Outputs, 1 ESTOP Input
	Output Low Voltage	Max. 1.0V @ IO _{UT} = 50mA
	Input High Voltage (ON)	Min. 4.0V Max. 28.8V
	Input Low Voltage (OFF)	Max 0.8V
Kinematic Ranges	Position, Velocity, Acceleration, Jerk	64 bit floating point
Environment	Operating Temperature	0 - 50° C
	Storage Temperature	0 - 85° C
	Humidity	20 - 90% RH, non-condensing
Software Requirements	MPI	MPI version 04.02 or greater

Dimensions



Pinouts and Connector Information

RJ45 SynqNet Connector

AMP Connectors
Mfg P/N 1116353-1

SynqNet IN	Pin	Signal
	1	Transmit +
	2	Transmit -
	3	Receive +
	4	Unused 1+
	5	Unused 1-
	6	Receive -
	7	Unused 2+
	8	Unused 2-

RJ45 Mating Connector

AMP Connectors
Mfg P/N 5-557315
Shielded RJ45 recommended

SynqNet OUT	Pin	Signal
	1	Receive +
	2	Receive -
	3	Transmit +
	4	Unused 1+
	5	Unused 1-
	6	Transmit -
	7	Unused 2+
	8	Unused 2-

User I/O Connector

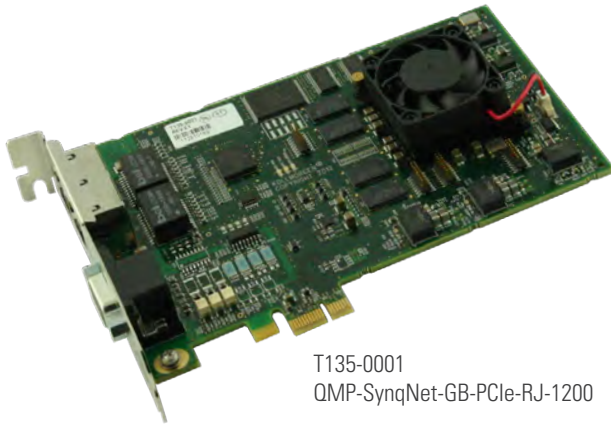
Female High Density D-15

User I/O Mating Connector

Male High Density D-15

User I/O Connector	Pin	Signal
	1	OPTO_A (OUT)
	2	OPTO_B RTN (OUT)
	3	OPTO_D (IN)
	4	OPTO_E RTN (IN)
	5	XESTOP
	6	A_RTN (OUT)
	7	OPTO_C (OUT)
	8	OPTO_D RTN (IN)
	9	OPTO_F (IN)
	10	XESTOP RTN
	11	OPTO_B (OUT)
	12	OPTO_C RTN (OUT)
	13	OPTO_E (IN)
	14	OPTO_F RTN (IN)
	15	GND

QMP-SynqNet-PCIe

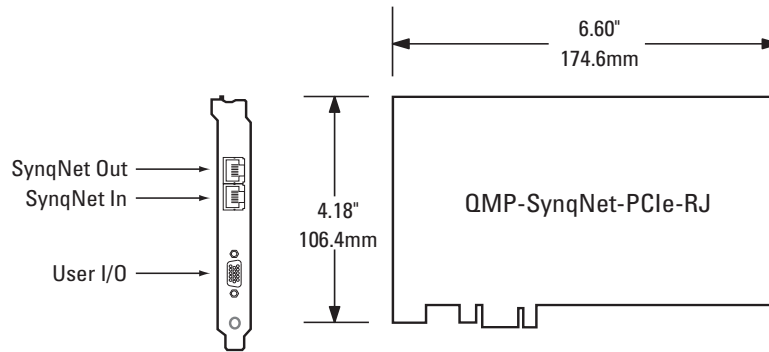


T135-0001
QMP-SynqNet-GB-PCIe-RJ-1200

Specifications

Function	Parameter	Specification
Processor	CPU	PowerPC e-500 core, 64-bit floating point 1200MHz (T135-0001) / 800MHz (T135-0002) / 400MHz (T135-0003)
	DRAM/FLASH	512MB/32MB
Servo Loop	Update Rate	User programmable
	4 Axes Update Rate	Max: 48 kHz
	20 Axes Update Rate	Max: 12 kHz
Board Interface	Connectors	SynqNet Interface: RJ45 User I/O: High Density D (15-pin)
	Form Factor	PCI Express
	Host Bus	PCIe x1
	CPCI Bus Speed	0 - 66MHz
	Memory Interface	32-bit direct memory map
	Power	Typ. 5V @ 3.2A Typ. 12V @ 0.1A (required for fan operation)
	Power	Typ. 5V @ 3.2A Typ. 12V @ 0.1A (required for fan operation)
User I/O	Lines	3 Inputs; 3 Outputs, 1 ESTOP Input
	Output Low Voltage	Max. 1.0V @ IOUT = 50mA
	Input High Voltage (ON)	Min. 4.0V Max. 28.8V
	Input Low Voltage (OFF)	Max 0.8V
Kinematic Ranges	Position, Velocity, Acceleration, Jerk	64 bit floating point
Environment	Operating Temperature	0 - 50° C
	Storage Temperature	0 - 85° C
	Humidity	20 - 90% RH, non-condensing
	Air Flow	200 lfm; 1M/sec
Software Requirements	MPI	MPI version 04.02 or greater

Dimensions



Pinouts and Connector Information

RJ45 SynqNet Connector

AMP Connectors
Mfg P/N 1116353-1

SynqNet IN	Pin	Signal
	1	Transmit +
	2	Transmit -
	3	Receive +
	4	Unused 1+
	5	Unused 1-
	6	Receive -
	7	Unused 2+
	8	Unused 2-

RJ45 Mating Connector

AMP Connectors
Mfg P/N 5-557315
Shielded RJ45 recommended

SynqNet OUT	Pin	Signal
	1	Receive +
	2	Receive -
	3	Transmit +
	4	Unused 1+
	5	Unused 1-
	6	Transmit -
	7	Unused 2+
	8	Unused 2-

User I/O Connector

Female High Density D-15

User I/O Mating Connector

Male High Density D-15

User I/O Connector	Pin	Signal
	1	OPTO_A (OUT)
	2	OPTO_B_RTN (OUT)
	3	OPTO_D (IN)
	4	OPTO_E_RTN (IN)
	5	XESTOP
	6	A_RTN (OUT)
	7	OPTO_C (OUT)
	8	OPTO_D_RTN (IN)
	9	OPTO_F (IN)
	10	XESTOP_RTN
	11	OPTO_B (OUT)
	12	OPTO_C_RTN (OUT)
	13	OPTO_E (IN)
	14	OPTO_F_RTN (IN)
	15	GND

High Density D-15 connector

QMP-SynqNet-CPCI-3U

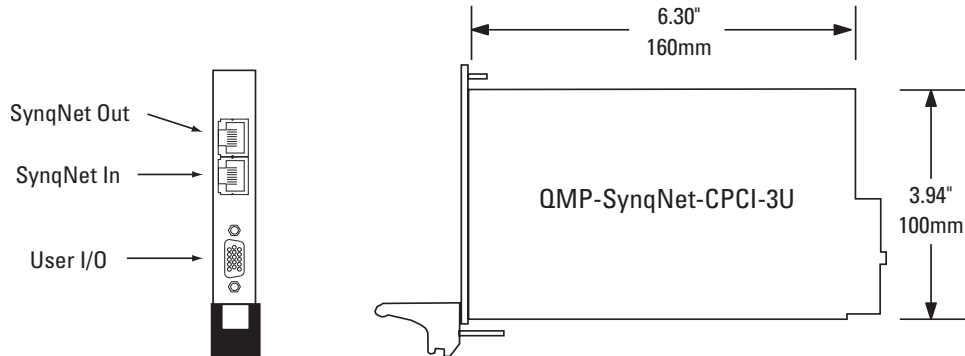


T134-0001
QMP-SynqNet-GB- CPCI-3U-RJ-1200

Specifications

Function	Parameter	Specification
Processor	CPU	PowerPC e-500 core, 64-bit floating point 1200MHz (T134-0001) / 800MHz (T134-0002) / 400MHz (T134-0003)
	DRAM/FLASH	512MB/32MB
Servo Loop	Update Rate	User programmable
	4 Axes Update Rate	Max: 48 kHz
	20 Axes Update Rate	Max: 12 kHz
Board Interface	Connectors	SynqNet Interface: RJ45 User I/O: High Density D (15-pin)
	Form Factor	Compact PCI 3U
	Host Bus	32-bit Universal CPCI
	CPCI Bus Speed	25 - 66MHz
	Memory Interface	32-bit direct memory map
	Power	Typ. 3.3V @ 2A
	User I/O	Lines
Output Low Voltage		Max. 1.0V @ IOU = 50mA
Input High Voltage (ON)		Min. 4.0V Max. 28.8V
Input Low Voltage (OFF)		Max 0.8V
Kinematic Ranges	Position, Velocity, Acceleration, Jerk	64 bit floating point
Environment	Operating Temperature	0 - 50° C
	Storage Temperature	0 - 85° C
	Humidity	20 - 90% RH, non-condensing
Software Requirements	MPI	MPI version 04.02 or greater

Dimensions



Pinouts and Connector Information

RJ45 SynqNet Connector

AMP Connectors
Mfg P/N 1116353-1

SynqNet IN	Pin	Signal
	1	Transmit +
	2	Transmit -
	3	Receive +
	4	Unused 1+
	5	Unused 1-
	6	Receive -
	7	Unused 2+
	8	Unused 2-

RJ45 Mating Connector

AMP Connectors
Mfg P/N 5-557315
Shielded RJ45 recommended

SynqNet OUT	Pin	Signal
	1	Receive +
	2	Receive -
	3	Transmit +
	4	Unused 1+
	5	Unused 1-
	6	Transmit -
	7	Unused 2+
	8	Unused 2-

User I/O Connector

Female High Density D-15

User I/O Mating Connector

Male High Density D-15

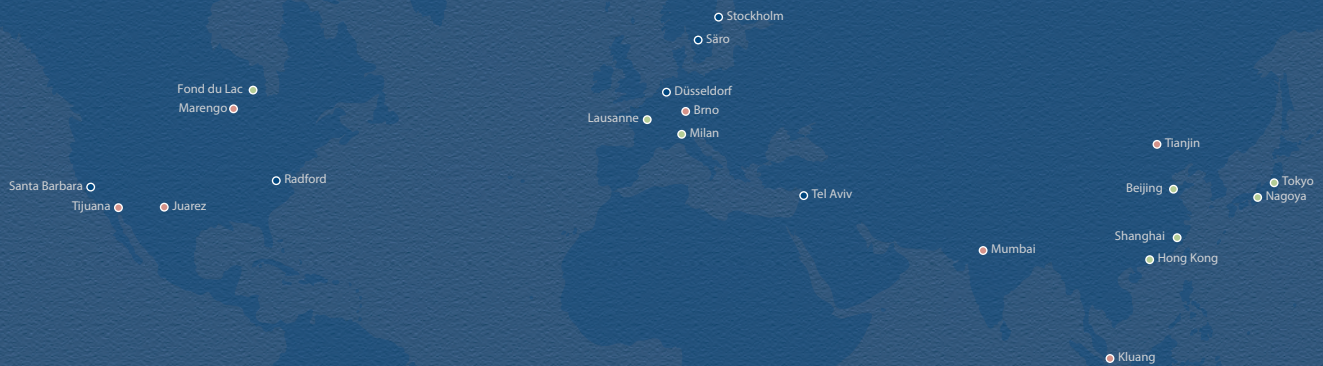
User I/O Connector	Pin	Signal
	1	OPTO_A (OUT)
	2	OPTO_B_RTN (OUT)
	3	OPTO_D (IN)
	4	OPTO_E_RTN (IN)
	5	XESTOP
	6	A_RTN (OUT)
	7	OPTO_C (OUT)
	8	OPTO_D_RTN (IN)
	9	OPTO_F (IN)
	10	XESTOP_RTN
	11	OPTO_B (OUT)
	12	OPTO_C_RTN (OUT)
	13	OPTO_E (IN)
	14	OPTO_F_RTN (IN)
	15	GND

About Kollmorgen

Kollmorgen is a leading provider of motion systems and components for machine builders. Through world-class knowledge in motion, industry-leading quality and deep expertise in linking and integrating standard and custom products, Kollmorgen delivers breakthrough solutions that are unmatched in performance, reliability and ease-of-use, giving machine builders an irrefutable marketplace advantage.

For assistance with your application needs, contact us at: 540-633-3545, contactus@kollmorgen.com or visit www.kollmorgen.com

- Application Centers
- Global Design & Manufacturing
- Global Manufacturing



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