

AKD™

SynqNet Communication



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Valid for Hardware Revision C

Patents Pending

Part Number 903-200011-00



Keep all manuals as a product component during the life span of the product.
Pass all manuals to future users/owners of the product.

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Record of Document Revisions:

Revision	Remarks
A, 10/2011	Launch version

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1 General

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1.1 About this Manual

This manual, *AKD SynqNet Communication*, describes the installation, setup, range of functions, and software protocol for the SynqNet AKD product series. All AKD SynqNet drives have built-in SynqNet functionality; therefore an additional option card is not required.

A digital version of this manual (pdf format) is available on the CD-ROM included with your drive. Manual updates can be downloaded from the Kollmorgen™ website.

Related documents for the AKD series include:

- *AKD Quick Start* (also provided in hard copy). This guide provides instructions for basic drive setup and connection to a network.
- *AKD Installation Manual* (also provided in hard copy for EU customers). This manual provides instructions for installation and drive setup.
- *AKD Parameter and Command Reference Guide*. This guide provides documentation for the parameters and commands used to program the AKD.
- *AKD User Guide*. This manual includes complete WorkBench instructions, faults and warnings, and parameter descriptions.

1.2 Target Group

This manual addresses personnel with the following qualifications:

- Installation: only by electrically qualified personnel.
- Setup: only by qualified personnel with extensive knowledge of electrical engineering and drive technology
- Programming: software developers, project-planners

The qualified personnel must know and observe the following standards:






- ISO 12100, IEC 60364 and IEC 60664
- National accident prevention regulations













WARNING During operation there are deadly hazards, with the possibility of death, severe injury or material damage. The operator must ensure that the safety instructions in this manual are followed. The operator must ensure that all personnel responsible for working with the servo drive have read and understand the manual.

1.3 Symbols used

Warning Symbols

Symbol	Indication
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Indicates situations which, if not avoided, could result in property damage.
	This is not a safety symbol. This symbol indicates important notes.

Drawing symbols

Symbol	Description	Symbol	Description
	Signal ground		Diode
	Chassis ground		Relays
	Protective earth		Relays switch off delayed
	Resistor		Normal open contact
	Fuse		Normal closed contact

2 Safety

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2.1 Safety Instructions

⚠ DANGER

During operation there are deadly hazards, with the possibility of death, severe injury or material damage. Do not open or touch the equipment during operation. Keep all covers and cabinet doors closed during operation. Touching the equipment is allowed during installation and commissioning for properly qualified persons only.

- During operation, drives may have uncovered live components, depending on their level of enclosure protection.
- Control and power connections may be live, even though the motor is not rotating.
- Drives may have hot surfaces during operation. Heat sink can reach temperatures above 80°C.

⚠ WARNING

Electronic equipment can fail. The user is responsible for ensuring that in the event of a failure of the servo amplifier, the drive is set to a state that is safe for both machinery and personnel, for instance with the aid of a mechanical brake.

Drives with servo amplifiers and SynqNet are remote-controlled machines. They can start to move at any time without previous warning. Take appropriate measures to ensure that the operating and service personnel is aware of this danger.

Implement appropriate protective measures to ensure that any unintended start-up of the machines cannot result in dangerous situations for personnel or machinery. Software limit-switches are not a substitute for the hardware limit-switches in the machine.

NOTICE

Install the drive as described in the *Installation Manual*. Never break any of the electrical connections to the drive while it is live. This can result in destruction of the electronics.

NOTICE

Do not connect the Ethernet line for the PC with the set up software to the SynqNet interface X5/X6. The set up Ethernet cable must be connected to the service interface on X11.

2.2 Use as directed

Drives are components that are built into electrical plants or machines and can only be operated as integral components of these plants or machines. The manufacturer of the machine used with a drive must generate a risk assessment for the machine and take appropriate measures to ensure that unforeseen movements cannot cause personnel injury or property damage.

- Observe the chapters "Use as directed" and "Prohibited use" in the *AKD Installation Manual*.
- The SynqNet interface serves only for the connection of the *AKD* to a master with SynqNet connectivity.

2.3 Prohibited use

Use other than that described in chapter "Use as directed" is not intended and can lead to personnel injuries and equipment damage. The drive may not be used with a machine that does not comply with appropriate national directives or standards. The use of the drive in the following environments is also prohibited:

- potentially explosive areas
- environments with corrosive and/or electrically conductive acids, alkaline solutions, oils, vapors, dusts
- ships or offshore applications

The connectors X5 and X6 of the AKD SynqNet drive may not be used for any ethernet protocol except SynqNet.

3 Installation and Setup

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3.1 Safety Instructions

▲ DANGER Never disconnect any electrical connections to the drive while the drive is live. There is a danger of electrical arcing with damage to contacts and serious personal injury. Wait at least seven minutes after disconnecting the drive from the main supply power before touching potentially live sections of the equipment (e.g. contacts) or undoing any connections. Capacitors can still have dangerous voltages present up to 7 minutes after switching off the supply power. To be sure, measure the voltage in the DC Bus link and wait until it has fallen below 40 V. Control and power connections can still be live, even if the motor is not rotating.

▲ WARNING Electronic equipment can fail. The user is responsible for ensuring that, in the event of a failure of the servo amplifier, the drive is set to a state that is safe for both machinery and personnel, for instance with the aid of a mechanical brake. Drives with servo amplifiers and SynqNet are remote-controlled machines. They can start to move at any time without previous warning. Take appropriate measures to ensure that the operating and service personnel is aware of this danger. Implement appropriate protective measures to ensure that any unintended start-up of the machines cannot result in dangerous situations for personnel or machinery. Software limit-switches are not a substitute for the hardware limit-switches in the machine.

NOTICE Install the drive as described in the *Installation Manual*. The wiring for the analog set-point input and the positioning interface, as shown in the wiring diagram in the *Installation Manual*, is not required. Never break any of the electrical connections to the drive while it is live. This action can result in destruction of the electronics.

NOTICE The drive's status must be monitored by the PLC to acknowledge critical situations. Wire the FAULT contact in series into the emergency stop circuit of the installation. The emergency stop circuit must operate the supply contactor.

NOTE Use WorkBench to alter drive settings. Any other alterations will invalidate the warranty.

NOTE Because of the internal representation of the position-control parameters, the position controller can only be operated if the final limit speed of the drive does not exceed:

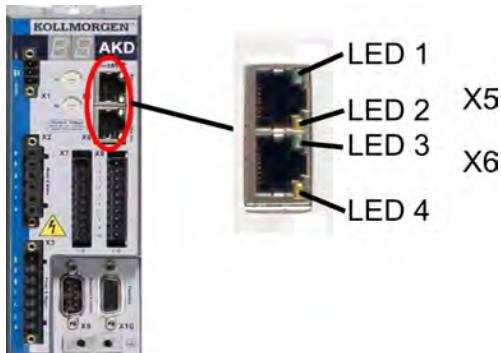
rotary
 at sinusoidal² commutation: 7500 rpm
 at trapezoidal commutation: 12000 rpm.

linear
 at sinusoidal² commutation: 4 m/s
 at trapezoidal commutation: 6.25 m/s

NOTE All the data on resolution, step size, positioning accuracy etc. refer to calculatory values. Non-linearities in the mechanism (backlash, flexing, etc.) are not taken into account. If the final limit speed of the motor must be altered, then all the parameters that were previously entered for position control and motion blocks must be adapted.

3.2 SynqNet Onboard

Connection to the SynqNet Network can be made using the X5 (in port) and X6 (out port).



3.3 Synqnet Cables

You can connect to the SynqNet network using RJ-45 connectors.

3.3.1 Recommended SynqNet Cabling

The following is recommended for SynqNet Cabling:

- Use shielded category 5 cabling.
- The RF immunity of 100BT networks when using unshielded cable is moderate. Kollmorgen™ recommends that only shielded cabling is used.
- Braid + foil shielding is the most effective, but foil + drain wire shielding is acceptable.
- If unusually high levels of interference are generated by the machine or nearby equipment, consider using shielded cables with built-in ferrites.
- Ensure that each SynqNet node is effectively grounded, which implies connecting a short fat strap to the machine chassis or busbar.
- There is no minimum length requirement for 100BT cables. However, cables must not be longer than 100m. Longer links are possible over copper using repeaters or over fibre using media converters. Contact the cable factory for further information.
- The machine chassis must be effectively bonded together. This is particularly important when using SynqNet nodes that do not have independently shielded IN and OUT ports.
- Be sure to take the usual precautions to secure the cabling so as to avoid chafing and fatigue.
- High flexure cables are required for cable retractors. Only two signal pairs are needed.
- Do not use cable couplers. Commercially available units generally have poor shielding and are consequently an EMC hazard.
- SynqNet is not compatible with standard Ethernet hubs or repeaters.
- SynqNet does not support POE (Power-over-Ethernet).

3.3.2 Synqnet Cable Length

The SynqNet cable lengths are derived from the measured propagation delays during network initialization. This information is used to determine the spacing between packets for each node. SynqNet networks can have up to 32 nodes and cables can be up to 100 meters in length. By measuring the actual propagation delays and optimizing the packet spacing, the network performance and actual bandwidth is improved.

Typical CAT5 cable propagation delays are roughly 0.005 microsec per meter. Actual values are affected by cable construction and will vary, but the variation will be small for any reasonable cable. The propagation delay can be estimated by a cable propagation velocity of 70% the speed of light, using the formula:

$$\text{delay} = \text{meters} * (1,000,000 / (0.7 * 299,722,458))$$

Length (meters)	Time (microsec)
1	0.005
10	0.048
25	0.119
50	0.238
100	0.477

3.4 LED functions

The communication status is indicated by the built-in LEDs. SynqNet LEDs will BLINK to indicate a fault (or undiscovered network). A drive with no blinking LEDs is in normal cyclic operation (without faults). Each SynqNet port has two LEDs. And each LED has a particular function, which is described in further detail below.

Connector	LED	Port	Meaning	Function
X5	LED1	IN	Network activity	ON = running (cyclic phase) OFF = not running BLINK = discovery phase
	LED2	IN	Link activity	ON = link active OFF = link inactive
X6	LED3	OUT	Network activity	ON = running (cyclic phase) OFF = not running BLINK = discovery phase
	LED4	OUT	Link activity	ON = link active OFF = link inactive

3.5 SynqNet Interconnection

3.5.1 String Topology

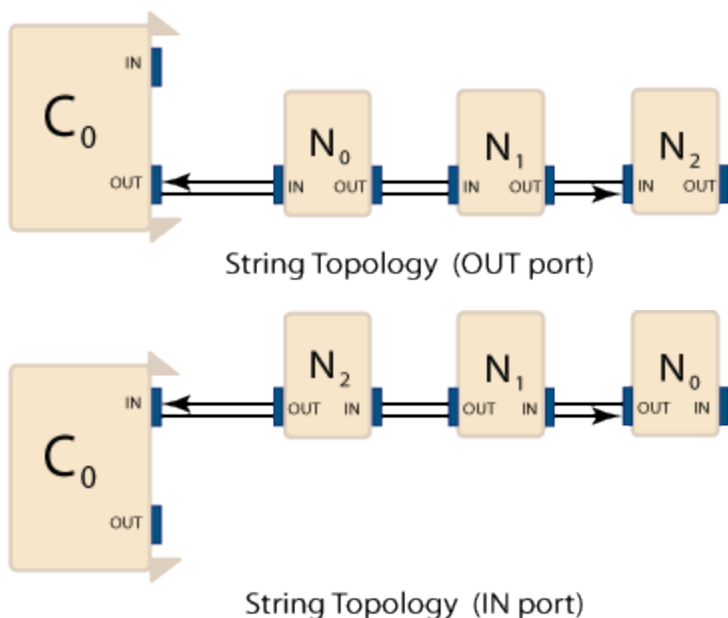
The String Topology is the most basic network configuration. Packets are sent downstream from the controller to the nodes. Each node repeats the downstream data to the next node. Packets are also sent upstream from the nodes to the controller. Each node repeats the upstream data to the next node. If a cable breaks, the nodes downstream from the break will no longer be able to send/receive packets to/from the controller.

Due to the un-terminated nature of a String Topology, discovering a topology of this type requires a time-out period to detect the end of the string. Therefore, more time is needed to discover an un-terminated String Topology than other network types. To reduce the discovery time, add a Loop-back Connector to the end of the topology (String Topology with Termination).

A String Topology has nodes connected to the controller's OUT port or the controller's IN port, but not both. A Dual String Topology has nodes that are discovered on both the controller's OUT port and IN port.

NOTE

The String Topology does NOT support fault recovery.

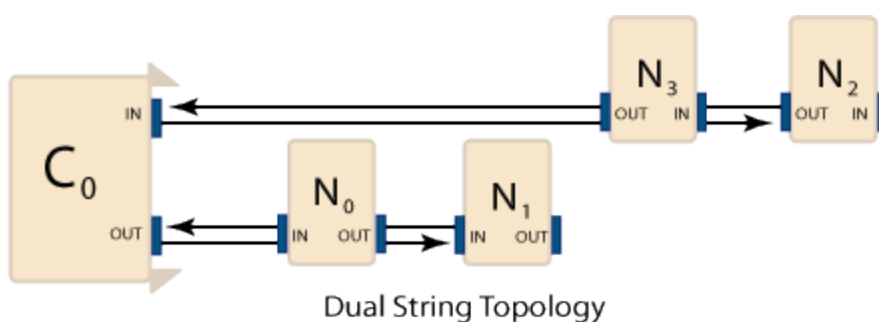


3.5.2 Dual String Topology

The Dual String Topology is a variation of the String network configuration. A Dual String network is a single SynqNet network with nodes connected to both the controller's OUT port and IN port. Packets are sent downstream from the controller to the nodes via the OUT port and IN port. Each node repeats the downstream data to the next node. Packets are also sent upstream from the nodes to the controller. Each node repeats the upstream data to the next node. If a cable breaks, the nodes downstream from the break will no longer be able to send/receive packets to/from the controller.

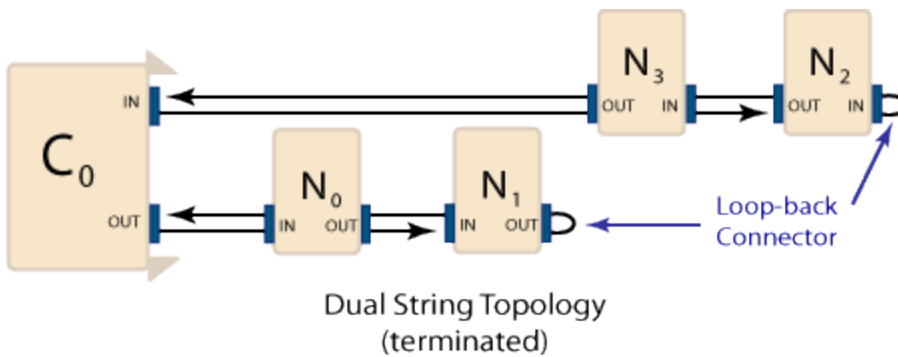
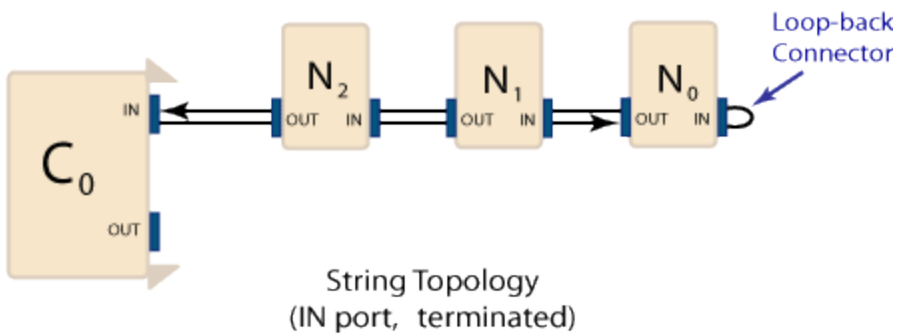
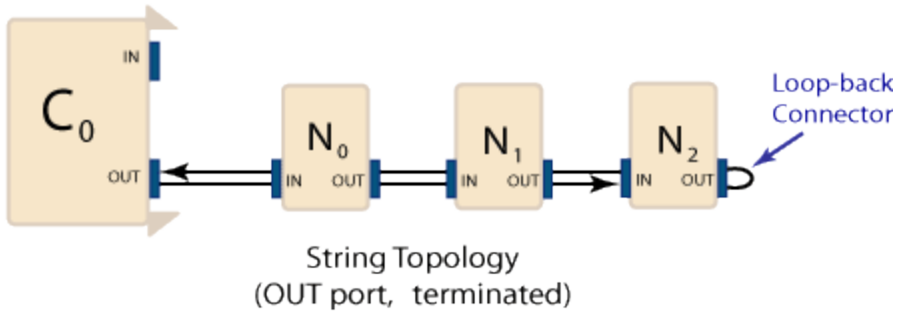
Due to the un-terminated nature of a Dual-String Topology, discovering a topology of this type requires a timeout period to detect the end of the string. Therefore, more time is needed to discover an un-terminated String Topology than other network types. To reduce the discovery time, add a Loop-back Connector to the end of the topology (Dual String Topology with Termination).

NOTE The Dual String topology does NOT support fault recovery.



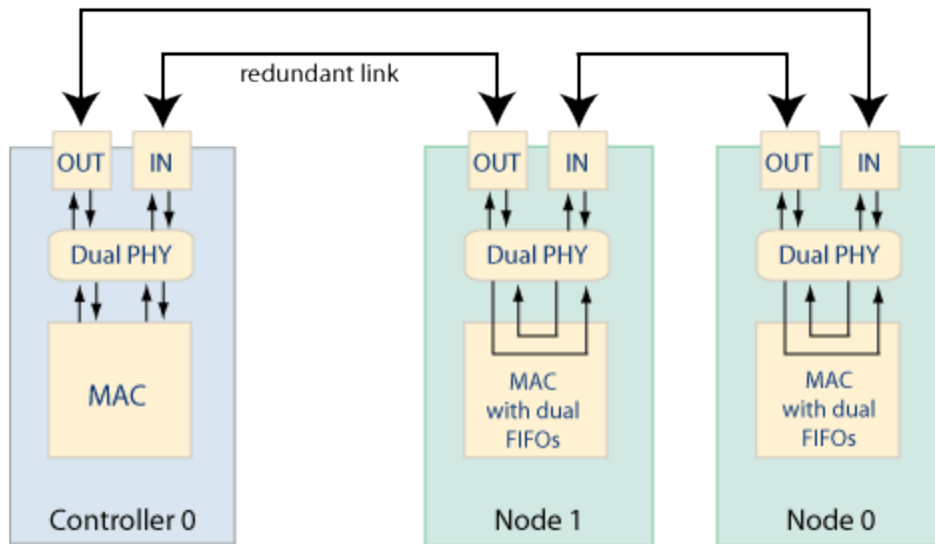
3.5.3 String and Dual String Topology with Termination

The String and Dual String Topologies support both termination and non-termination. A String or Dual String network with termination is the same as a String or Dual String topology, except a "loop-back" connector is added to the last node(s). The advantage of using a terminator on the last node is that the network initialization time is reduced, because the controller can deterministically find the last node on a network.



3.5.4 Ring topology

The ring is implemented with straight through cables. In SynqNet, the master node is referred to as the "Controller," and the slave nodes are referred to as "Nodes." Each link runs from an IN port to an OUT port. IN and OUT connector pin-outs are complementary (Receive+ on OUT pin 1 connects to IN pin 1 Transmit+ and so on). The IN and OUT port names are arbitrary conventions to assist in cabling systems properly since each link is bi-directional and there is no significant functional difference.



A SynqNet Ring with a controller and two nodes

The redundant link plays no part during normal operation of SynqNet. This link will become active if fault recovery is necessary. In this example, the redundant link is shown between Node 1 and the controller. Although it may be any link in the network.

The "farthest node" has the greatest number of downstream hops from the controller; in this case it is Node 1.

4 SynqNet Drive Parameters

The drive's functionality is designed to use various drive parameters and instructions, which are communicated over SynqNet. Some parameters have read-only access, whereas other parameters may have read/write access. The parameters can be stored in non-volatile memory on the drive and are used on each power-up cycle.

Examples of read-only drive parameters are:

AIN.VALUE
DOUTx.STATE
MOTOR.TEMP

Examples of read/write drive parameters are:

AOUT.MODE
DRV.DISTO
MOTOR.R

Drives are shipped with motor parameters set to zero and application parameters set to their default values. Parameters are identified by their command string and index. The index is used when accessing a parameter over SynqNet. Drive parameters are implemented for particular drive models and firmware versions.

NOTE

Supported parameters for a drive may be different, depending on the version of firmware.

4.1 Supported Parameters

AKD SynqNet supports all AKD parameters except Modbus(MODBUS.xxxx) and Motion tasking (MT.xxxx). If SynqNet is not cyclic the drive will behave like an analog drive. The following tables describes parameter types and ranges when SynqNet is cyclic. If the range field is blank then the parameter has the same range as when analog.

A number of parameters will still be accessible (their values can be changed), but they will have no effect on the system. These parameter's types are listed as NA. All other SynqNet parameters retain the same parameter type as when analog.

For a detailed description of all AKD parameters see Appendix B of the complete [AKD User Guide](#) on kollmorgen.com.

AIN Parameters	SynqNet Type	SynqNet Range
AIN.CUTOFF	RW	-
AIN.DEADBAND	NA	-
AIN.DEADBANDMODE	NA	-
AIN.ISCALE	NA	-
AIN.MODE	RW	0
AIN.OFFSET	NA	-
AIN.PSCALE	NA	-
AIN.VALUE	RO	-

AIN Parameters	SynqNet Type	SynqNet Range
AIN.VSCALE	NA	-
AIN.ZERO	NA	-

AOUT Parameters	SynqNet Type	SynqNet Range
AOUT.CUTOFF	NA	-
AOUT.DEBUGADDR	NA	-
AOUT.DUBUGDATATYPE	NA	-
AOUT.DEBUGSCALE	NA	-
AOUT.ISCALE	NA	-
AOUT.MODE	RW	12
AOUT.OFFSET	NA	-
AOUT.PSCALE	NA	-
AOUT.VALUE	RO	-
AOUT.VALUEU	NA	-
AOUT.VSCALE	NA	-

BODE Parameters	SynqNet Type	SynqNet Range
BODE.EXCITEGAP	NA	-
BODE.FREQ	NA	-
BODE.IAMP	NA	-
BODE.IFLIMIT	NA	-
BODE.IFTHRESH	NA	-
BODE.INJECTPOINT	NA	-
BODE.MODE	NA	-
BODE.MODETIMER	NA	-
BODE.PRDEPTH	NA	-
BODE.VAMP	NA	-
BODE.VFLIMIT	NA	-
BODE.VFTHRESH	NA	-

CAP Parameters	SynqNet Type	SynqNet Range
CAPx.EDGE	NA	-
CAPx.EN	NA	-
CAPx.EVENT	NA	-
CAPx.FILTER	NA	-
CAPx.MODE	NA	-
CAPx.PLFB	RO	-
CAPx.PREEDGE	NA	-
CAPx.PREFILTER	NA	-
CAPx.PRESELECT	NA	-
CAPx.STATE	RO	-
CAPx.T	RO	-
CAPx.TRIGGER	NA	-

CS Parameters	SynqNet Type	SynqNet Range
CS.DEC	NA	-
CS.STATE	NA	-
CS.TO	NA	-
CS.VTHRESH	NA	-

DIN Parameters	SynqNet Type	SynqNet Range
DIN.HCMDx	NA	-
DIN.LCMDx	NA	-
DIN.ROTARY	RO	-
DIN.STATES	RO	-
DINx.FILTER	RW	-
DINx.INV	NA	-
DINx.MODE	RW	0
DINx.PARAM	NA	-
DINx.STATE	RO	-

DOUT Parameters	SynqNet Type	SynqNet Range
DOUT.CTRL	RW	1
DOUT.RELAYMODE	RW	-
DOUT.STATES	RO	-
DOUTx.MODE	RW	-
DOUT1.PARAM	NA	-
DOUTx.STATE	RO	-
DOUT1.STATEU	NA	-

DRV Parameters	SynqNet Type	SynqNet Range
DRV.ACC	RW	-
DRV.ACTIVE	RO	-
DRV.BLINKDISPLAY	CMD	-
DRV.CLRCRASHDUMP	CMD	-
DRV.CLRFAULTHIST	CMD	-
DRV.CLRFAULTS	CMD	-
DRV.CMDDELAY	NA	-
DRV.CMDSOURCE	RW	0
DRV.CRASHDUMP	INFO	-
DRV.DBLIMIT	RW	-
DRV.DEC	RW	-
DRV.DIR	NA	-
DRV.DIS	CMD	-
DRV.DISMEDIA	RW	0-2
DRV.DISSOURCES	RO	-
DRV.DISTO	RW	-
DRV.EMUEDIR	RW	-
DRV.EMUEMODE	RW	-

DRV Parameters	SynqNet Type	SynqNet Range
DRV.EMUETURN	RW	-
DRV.EMUERES	RW	-
DRV.EMUEZOFFSET	RW	-
DRV.EN	CMD	-
DRV.ENDEFAULT	RW	-
DRV.FAULTHIST	INFO	-
DRV.FAULTS	INFO	-
DRV.FEATURES	INFO	-
DRV.HANDWHEEL	RO	-
DRV.HELP	INFO	-
DRV.HELPALL	INFO	-
DRV.HWENMODE	NA	-
DRV.ICONT	RO	-
DRV.INFO	INFO	-
DRV.IPEAK	RO	-
DRV.IZERO	RW	-
DRV.LIST	INFO	-
DRV.LOGICVOLTS	INFO	-
DRV.MEMADDR	RW	-
DRV.MEMDATA	RW	-
DRV.MOTIONSTAT	NA	-
DRV.NAME	RW	-
DRV.NVCHECK	RO	-
DRV.NVLIST	INFO	-
DRV.NVLOAD	CMD	-
DRV.NVSAVE	CMD	-
DRV.ONTIME	INFO	-
DRV.OPMODE	RW	-
DRV.PWD	RO	0
DRV.READFORMAT	RW	-
DRV.RSTVAR	CMD	-
DRV.RUNTIME	RO	-
DRV.SETUPREQBITS	RO	-
DRV.SETUPREQLIST	INFO	-
DRV.STOP	NA	-
DRV.TEMPERATURES	INFO	-
DRV.TYPE	RO	-
DRV.VER	INFO	-
DRV.VERIMAGE	INFO	-
DRV.WARNINGS	RO	-
DRV.ZERO	RW	-

FB1 Parameters	SynqNet Type	SynqNet Range
FB1.BISSBITS	RW	-

FB1 Parameters	SynqNet Type	SynqNet Range
FB1.ENCRES	RW	-
FB1.HALLSTATE	RO	-
FB1.HALLSTATEU	RO	-
FB1.HALLSTATEV	RO	-
FB1.HALLSTATEW	RO	-
FB1.IDENTIFIED	RO	-
FB1.INITSIGNED	RW	-
FB1.MECHPOS	RO	-
FB1.MEMVER	RO	-
FB1.OFFSET	RW	-
FB1.ORIGIN	RW	-
FB1.PFIND	RW	-
FB1.PFINDCMDU	RW	-
FB1.POLES	RW	-
FB1.PSCALE	RW	-
FB1.RESKTR	RW	-
FB1.RESREFPHASE	RW	-
FB1.SELECT	RW	-
FB1.TRACKINGCAL	RW	-

FB2 Parameters	SynqNet Type	SynqNet Range
FB2.ENCRES	RW	-
FB2.MODE	RW	-
FB2.SOURCE	RW	-

FBUS Parameters	SynqNet Type	SynqNet Range
FBUS.PARAMx	RW	-
FBUS.PLLSTATE	RO	-
FBUS.PLLTHRESH	RW	-
FBUS.SAMPLEPERIOD	RW	-
FBUS.SYNCACT	RO	-
FBUS.SYNCDIST	RW	-
FBUS.SYNCWND	RW	-
FBUS.TYPE	RO	-

GEAR Parameters	SynqNet Type	SynqNet Range
GEAR.ACCMAX	NA	-
GEAR.DECMAX	NA	-
GEAR.IN	NA	-
GEAR.MODE	NA	-
GEAR.MOVE	NA	-
GEAR.OUT	NA	-
GEAR.VMAX	NA	-

GUI Parameters	SynqNet Type	SynqNet Range
GUI.DISPLAY	RO	-
GUI.PARAM01	RW	-
GUI.PARAM02	RW	-
GUI.PARAM03	RW	-
GUI.PARAM04	RW	-
GUI.PARAM05	RW	-
GUI.PARAM06	RW	-
GUI.PARAM07	RW	-
GUI.PARAM08	RW	-
GUI.PARAM09	RW	-
GUI.PARAM10	RW	-

HOME Parameters	SynqNet Type	SynqNet Range
HOME.ACC	NA	-
HOME.AUTOMOVE	NA	-
HOME.DEC	NA	-
HOME.DIR	NA	-
HOME.DIST	NA	-
HOME.FEEDRATE	NA	-
HOME.IPEAK	NA	-
HOME.MODE	NA	-
HOME.MOVE	NA	-
HOME.P	NA	-
HOME.PERRTHRESH	NA	-
HOME.SET	NA	-
HOME.V	NA	-

HWLS Parameters	SynqNet Type	SynqNet Range
HWLS.NEGSTATE	NA	-
HWLS.POSSTATE	NA	-

IL Parameters	SynqNet Type	SynqNet Range
IL.BUSFF	RO	-
IL.CMD	RO	-
IL.CMDU	NA	-
IL.DIFOLD	RO	-
IL.FB	RO	-
IL.FF	RO	-
IL.FOLDFTHRESH	RW	-
IL.FOLDFTHRESHU	RW	-
IL.FOLDWTHRESH	RW	-
IL.FRICTION	RW	-
IL.IFOLD	RO	-
IL.IUFB	RO	-

IL Parameters	SynqNet Type	SynqNet Range
IL.IVFB	RO	-
IL.KACCCFF	RW	-
IL.KBUSFF	RW	-
IL.KP	RW	-
IL.KPDRATIO	RW	-
IL.KPLOOKUPINDEX	RW	-
IL.KPLOOKUPVALUE	RW	-
IL.KPLOOKUPVALUES	INFO	-
IL.KVFF	RW	-
IL.LIMITN	NA	-
IL.LIMITP	NA	-
IL.MFOLDD	RO	-
IL.MFOLDR	RO	-
IL.MFOLDT	RO	-
IL.MI2T	RO	-
IL.MI2TWTRESH	RW	-
IL.MIFOLD	RO	-
IL.MIMODE	RW	-
IL.OFFSET	NA	-
IL.VCMD	RO	-
IL.VUFB	RO	-
IL.VVFB	RO	-

IP Parameters	SynqNet Type	SynqNet Range
IP.ADDRESS	RW	-
IP.GATEWAY	RW	-
IP.MODE	RW	-
IP.RESET	CMD	-
IP.SUBNET	RW	-

LOAD Parameters	SynqNet Type	SynqNet Range
LOAD.INERTIA	RW	-

MOTOR Parameters	SynqNet Type	SynqNet Range
MOTOR.AUTOSET	RW	-
MOTOR.BRAKE	RW	-
MOTOR.BRAKERLS	NA	-
MOTOR.BRAKESTATE	RO	-
MOTOR.CTF0	RW	-
MOTOR.ICONT	RW	-
MOTOR.IDDATAVALID	RO	-
MOTOR.INERTIA	RW	-
MOTOR.IPEAK	RW	-
MOTOR.KE	RW	-

MOTOR Parameters	SynqNet Type	SynqNet Range
MOTOR.KT	RW	-
MOTOR.LQLL	RW	-
MOTOR.NAME	RW	-
MOTOR.PHASE	RW	-
MOTOR.PITCH	RW	-
MOTOR.POLES	RW	-
MOTOR.R	RW	-
MOTOR.RTYPE	RW	-
MOTOR.TBRAKEAPP	NA	-
MOTOR.TBRAKERLS	NA	-
MOTOR.TBRAKETO	NA	-
MOTOR.TEMP	RO	-
MOTOR.TEMPFAULT	RW	-
MOTOR.TEMPWARN	RW	-
MOTOR.TYPE	RW	-
MOTOR.VMAX	RW	-
MOTOR.VOLTMAX	RW	-
MOTOR.VOLTMIN	RW	-
MOTOR.VOLTRATED	RW	-
MOTOR.VRATED	RW	-

PL Parameters	SynqNet Type	SynqNet Range
PL.CMD	RO	-
PL.ERR	RO	-
PL.ERRFTHRESH	RW	-
PL.ERRMODE	RW	-
PL.ERRWTHRESH	RW	-
PL.FB	RO	-
PL.FBSOURCE	RW	-
PL.INTINMAX	RW	-
PL.INTOUTMAX	RW	-
PL.KI	RW	-
PL.KP	RW	-
PL.MODP1	NA	-
PL.MODP2	NA	-
PL.MODPDIR	NA	-
PL.MODPEN	NA	-

PLS Parameters	SynqNet Type	SynqNet Range
PLS.EN	NA	-
PLS.MODE	NA	-
PLS.P1	NA	-
PLS.P2	NA	-
PLS.P3	NA	-

PLS Parameters	SynqNet Type	SynqNet Range
PLS.P4	NA	-
PLS.P5	NA	-
PLS.P6	NA	-
PLS.P7	NA	-
PLS.P8	NA	-
PLS.RESET	NA	-
PLS.STATE	NA	-
PLS.T1	NA	-
PLS.T2	NA	-
PLS.T3	NA	-
PLS.T4	NA	-
PLS.T5	NA	-
PLS.T6	NA	-
PLS.T7	NA	-
PLS.T8	NA	-
PLS.UNITS	NA	-
PLS.WIDTH1	NA	-
PLS.WIDTH2	NA	-
PLS.WIDTH3	NA	-
PLS.WIDTH4	NA	-
PLS.WIDTH5	NA	-
PLS.WIDTH6	NA	-
PLS.WIDTH7	NA	-
PLS.WIDTH8	NA	-

REC Parameters	SynqNet Type	SynqNet Range
REC.ACTIVE	RO	-
REC.CHx	RW	-
REC.DONE	RO	-
REC.GAP	RW	-
REC.NUMPOINTS	RW	-
REC.OFF	RW	-
REC.RECPRMLIST	INFO	-
REC.RETRIEVE	INFO	-
REC.RETRIEVEDATA	INFO	-
REC.RETRIEVEFRMT	RW	-
REC.RETRIEVEHDR	INFO	-
REC.RETRIEVESIZE	RW	-
REC.STOPTYPE	RW	-
REC.TRIG	CMD	-
REC.TRIGMASK	RW	-
REC.TRIGPARAM	RW	-
REC.TRIGPOS	RW	-
REC.TRIGPRMLIST	INFO	-

REC Parameters	SynqNet Type	SynqNet Range
REC.TRIGSLOPE	RW	-
REC.TRIGTYPE	RW	-
REC.TRIGVAL	RW	-

REGEN Parameters	SynqNet Type	SynqNet Range
REGEN.POWER	RO	-
REGEN.REXT	RW	-
REGEN.TEXT	RW	-
REGEN.TYPE	RW	-
REGEN.WATTEXT	RW	-

SM Paramters	SynqNet Type	SynqNet Range
SM.I1	NA	-
SM.I2	NA	-
SM.MODE	NA	-
SM.MOVE	NA	-
SM.T1	NA	-
SM.T2	NA	-
SM.V1	NA	-
SM.V2	NA	-

STO Parameters	SynqNet Type	SynqNet Range
STO.STATE	RO	-

SWLS Parameters	SynqNet Type	SynqNet Range
SWLS.EN	RW	-
SWLS.LIMIT0	RW	-
SWLS.LIMIT1	RW	-
SWLS.STATE	RO	-

UNIT Parameters	SynqNet Type	SynqNet Range
UNIT.ACCLINEAR	RW	-
UNIT.ACCROTARY	RW	-
UNIT.LABEL	RW	-
UNIT.PIN	RW	-
UNIT.PLINEAR	RW	-
UNIT.POUT	RW	-
UNIT.PROTARY	RW	-
UNIT.VLINEAR	RW	-
UNIT.VROTARY	RW	-

USER Parameter	SynqNet Type	SynqNet Range
USER.INT	RW	-

VBUS Parameters	SynqNet Type	SynqNet Range
VBUS.HALFVOLT	RW	-
VBUS.OVFTHRESH	RO	-
VBUS.OVWTHRESH	RW	-
VBUS.RMSLIMIT	RO	-
VBUS.UVFTHRESH	RW	-
VBUS.UVMODE	RW	-
VBUS.UVWTHRESH	RW	-
VBUS.VALUE	RO	-

VL Parameters	SynqNet Type	SynqNet Range
VL.ARPFx	RW	-
VL.ARPQx	RW	-
VL.ARTYPEx	RW	-
VL.ARZFx	RW	-
VL.ARZQx	RW	-
VL.BUSFF	RW	-
VL.CMD	RO	-
VL.CMDU	RW	-
VL.ERR	RO	-
VL.FB	RO	-
VL.FBFILTER	RO	-
VL.FBSOURCE	RW	-
VL.FBUNFILTERED	RO	-
VL.FF	RO	-
VL.GENMODE	RW	-
VL.KBUSFF	RW	-
VL.KI	RW	-
VL.KO	RW	-
VL.KP	RW	-
VL.KVFF	RW	-
VL.LIMITN	RW	-
VL.LIMITP	RW	-
VL.LMJR	RW	-
VL.MODEL	RW	-
VL.OBSBW	RW	-
VL.OBSMODE	RW	-
VL.THRESH	RW	-

WS Parameters	SynqNet Type	SynqNet Range
WS.ARM	CMD	-
WS.DISARM	CMD	-
WS.DISTMAX	RW	-
WS.DISTMIN	RW	-

WS Parameters	SynqNet Type	SynqNet Range
WS.IMAX	RW	-
WS.MODE	RW	-
WS.NUMLOOPS	RW	-
WS.STATE	RO	-
WS.T	RW	-
WS.TDELAY1	RW	-
WS.TDELAY2	RW	-
WS.TDELAY3	RW	-
WS.VTHRESH	RW	-

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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.

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