



SLEC

Installation Guide

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SLEC

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PATENTS

Israel Patent No. 235022

US Patent Application No. 14/532,023

Europe Patent application No.15187586.1

Japan Patent Application No.: 2015-193179

Chinese Patent Application No.: 201510639732.X

Taiwan(R.O.C.) Patent Application No. 104132118

Korean Patent Application No. 10-2015-0137612

www.acsmotioncontrol.com

support@acsmotioncontrol.com

sales@acsmotioncontrol.com

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Revision History

Date	Revision	Description
November 2021	3.11.01	New Version Release
December 2020	3.10	Corrections to cycle rate, certification
September 2020	3.02	Formatting
December 2018	1.30	Updated all images for the SLEC module Added reference to the <i>ACS Components in XL Scan System Application Note</i>

Date	Revision	Description
October 2018	1.20	Updated system diagram
July 2018	1.10	Removed requirement for the SLEC to be the first node in an EtherCAT network.
February 2018	1.00	First release

Related Documents

Documents listed in the following table provide additional information related to this document.

The most updated version of the documents can be downloaded by authorized users from [ACS Downloads](#).

Conventions Used in this Guide

Text Formats

Format	Description
Bold	Names of GUI objects or commands
BOLD + UPPERCASE	ACSPL+ variables and commands
<code>Monospace + grey background</code>	Code example
<i>Italic</i>	Names of other documents
Blue	Hyperlink
[]	In commands indicates optional item(s)
	In commands indicates either/or items

Flagged Text






	Note - includes additional information or programming tips.
	Caution - describes a condition that may result in damage to equipment.
	Warning - describes a condition that may result in serious bodily injury or death.
	Model - highlights a specification, procedure, condition, or statement that depends on the product model
	Advanced - indicates a topic for advanced users.

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1. Introduction

This document describes the installation information for the SLEC, an EtherCAT node which is a part of the XLSCAN system.

For information on the operation of ACS components in an XL SCAN system refer to the *ACS Components in XL Scan System Application Note*.

1.1 Product Overview

The SLEC is an EtherCAT node that bridges an ACS EtherCAT motion controller and a Scanlab scanner controller.

The ACS EtherCAT network is synchronized to the Scanlab scanner controller clock.

The SLEC is fed by 24Vdc and can work at motion controller cycle rates of 2, 4, or 5 kHz.

It is a standalone unit with DIN rail mounting.

A XLSCAN system and a SLEC interface block diagram are shown in [Figure 1-1](#) and [Figure 1-2](#), respectively.

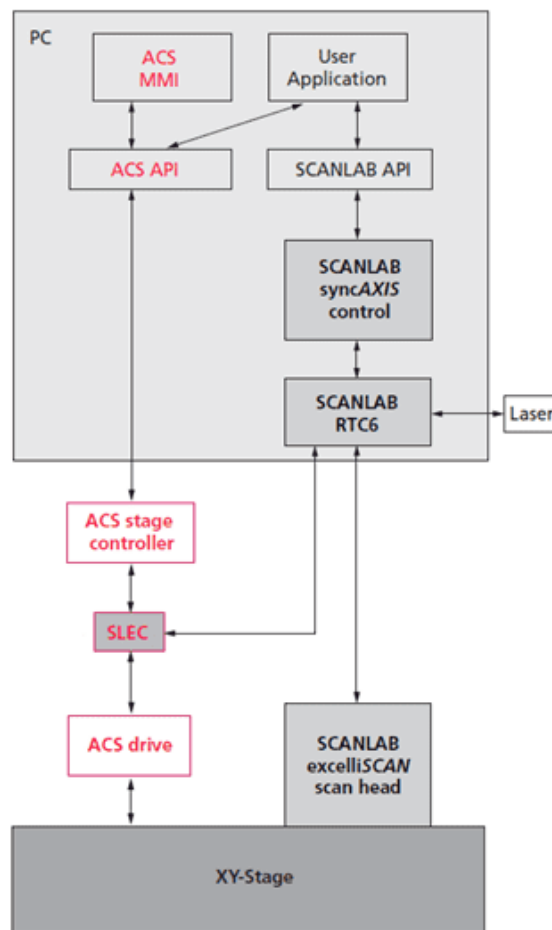


Figure 1-1. SLEC System



The XLSCAN system illustrated above shows ACS components in red. Specific system components are selected according to stage and system requirements.



For information on the operation of ACS components in an XL SCAN system refer to the *ACS Components in XL Scan System Application Note*.

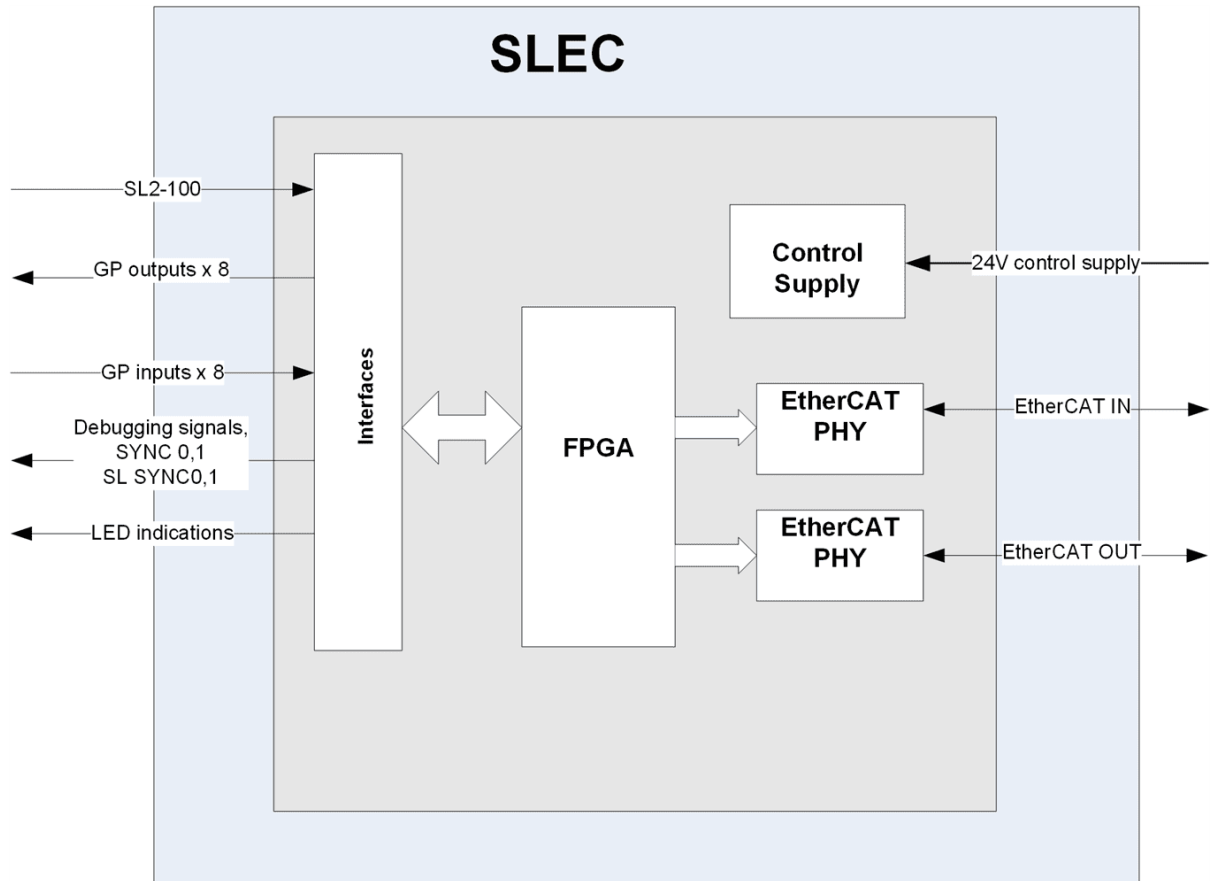


Figure 1-2. SLEC Interface Block diagram

2. Detailed description

2.1 Connections

Figure 2-1 shows and Table 2-1 describes the SLEC connections.

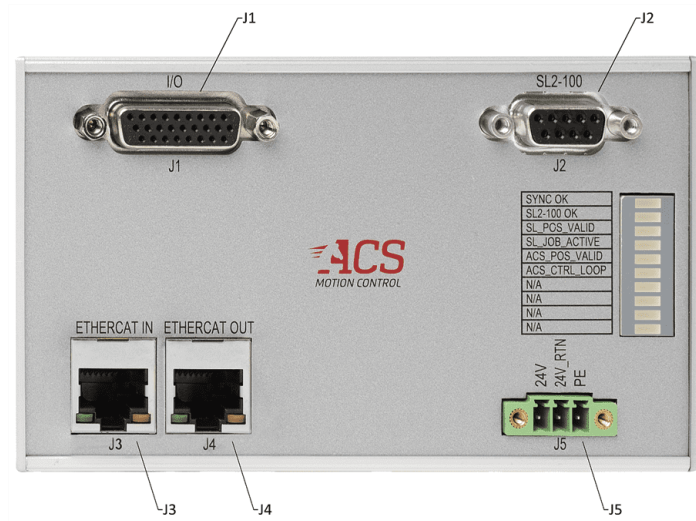


Figure 2-1. Connectors

Table 2-1. Connections

Connector assignment	Conenctor name	Description
J1	I/O	Digital I/O
J2	SL2-100	
J3	EhterCAT IN	
J4	EtherCAT OUT	
J5	Control supply	

2.2 EtherCAT LED Indicators

Figure 2-2 shows and Table 2-2 describes the EtherCAT LED indicators.

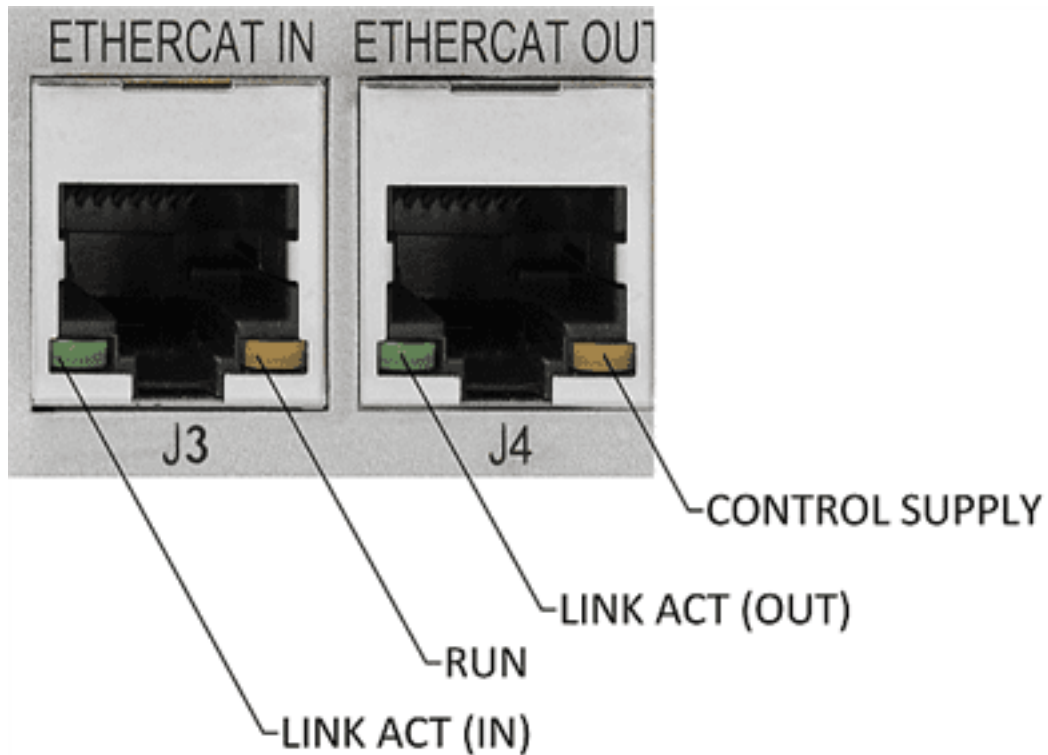


Figure 2-2. EtherCAT LED Indicators

Table 2-2. EtherCAT LED Indicators

Items	Description	Remarks
Link Act (IN)	One for EtherCAT IN, Green LED > Off- No cable is connected. > Blinking –Link and activity > On –Link without activity	Located on RJ45 Ethernet connector
Link Act (OUT)	One for EtherCAT OUT, Green LED > Off- No cable is connected. > Blinking –Link and activity > On –Link without activity	Located on RJ45 Ethernet connector

Items	Description	Remarks
Run	Yellow LED: <ul style="list-style-type: none"> > On - network communication is OK > Blinking/Off - network communication error 	Located on RJ45 Ethernet
Control Supply	Yellow LED <ul style="list-style-type: none"> > On - Control supply is OK > Off - no supply connected 	Located on RJ45 Ethernet connector

2.3 Package content

The SLEC package contains the following items:

- > SLEC module
- > 24V supply mating connector

2.4 Order part number

The SLEC is available in a single configuration. The ordering part number is: "SLEC". [Figure 2-3](#) is an example of a SLEC label.

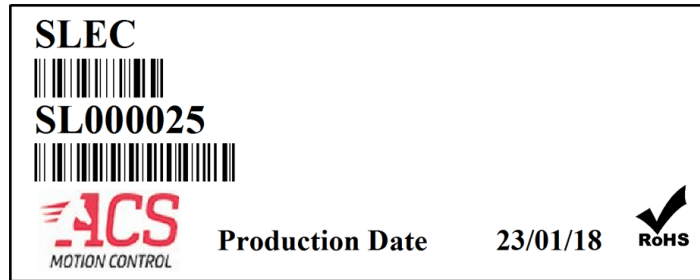


Figure 2-3. SLEC label

3. Connectors

This section describes how to interface with the SLEC.

3.1 J1 Digital I/O

Label: J1 I/O

Connector type: DBHD 26 female

Mating Connector type: DBHD26 male

[Table 3-1](#) lists the pinouts and [Figure 3-1](#) is a connection diagram for the digital I/O connector J1.

Table 3-1. J1 - Digital I/O Pinout

Pin	Name	Description
1	OUT1	Digital output 1
2	OUT3	Digital output 3
3	OUT5	Digital output 5
4	OUT7	Digital output 7
5	IN1	Digital input 1
6	IN3	Digital input 3
7	IN5	Digital input 5
8	IN7	Digital input 7
9	N.C	Not connected
10	OUT0	Digital output 0
11	OUT2	Digital output 2
12	OUT4	Digital output 4
13	OUT6	Digital output 6
14	IN0	Digital input 0
15	IN2	Digital input 2
16	IN4	Digital input 4
17	IN6	Digital input 6

Pin	Name	Description
18	N.C	Not connected
19	N.C	Not connected
20	N.C	Not connected
21	N/A	Internal use only
22	N/A	Internal use only
23	N/A	Internal use only
24	N/A	Internal use only
25	DGND	Digital ground
26	SHIELD	Shield

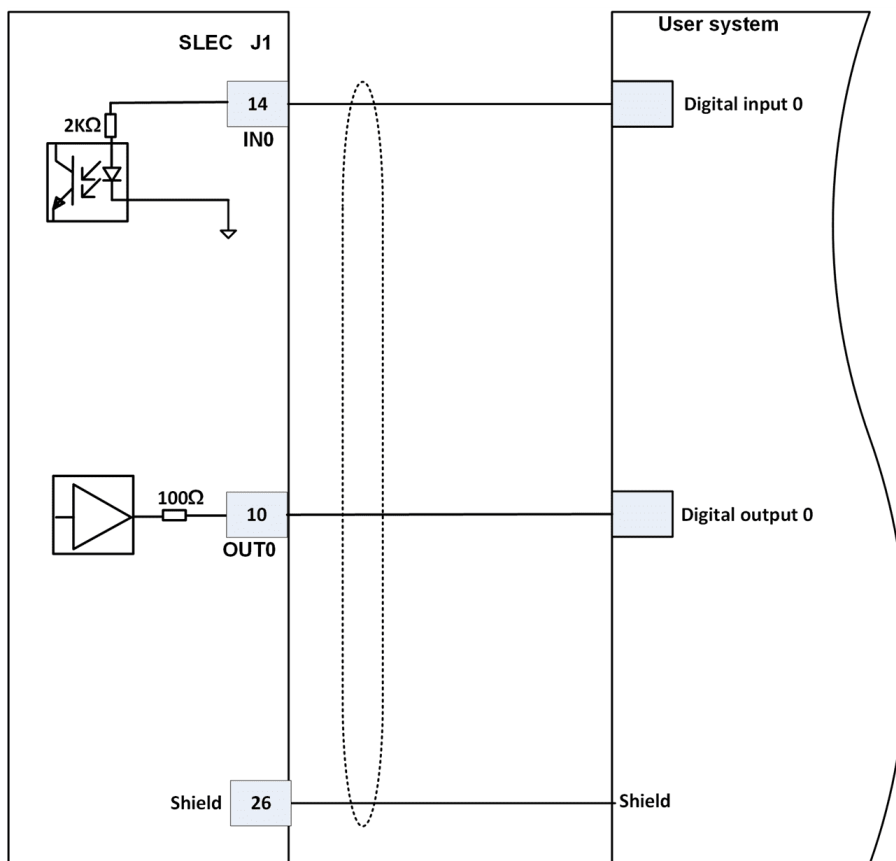


Figure 3-1. J1 - Digital I/O Connection Diagram

3.2 J2 SL2-100 interface

Label: J2 SL2-100

Connector type: DB9 female

Mating connector type: DB9 male

Table 3-2 lists the pinouts and Figure 3-2 is a connection diagram for the SL2-100 interface J2.

Table 3-2. J2 - SL2-100 Pinout

Pin	Name	Description
1	DATA_IN+	SL2-100 data in positive edge
2	N.C	Not connected
3	N.C	Not connected
4	N.C	Not connected
5	DATA_OUT+	SL2-100 data out positive edge
6	DATA_IN-	SL2-100 data in negative edge
7	DGND	Digital ground
8	DGND	Digital ground
9	DATA_OUT-	SL2-100 data out negative edge
	Connector shell and front screw locks M1, M2	SHIELD

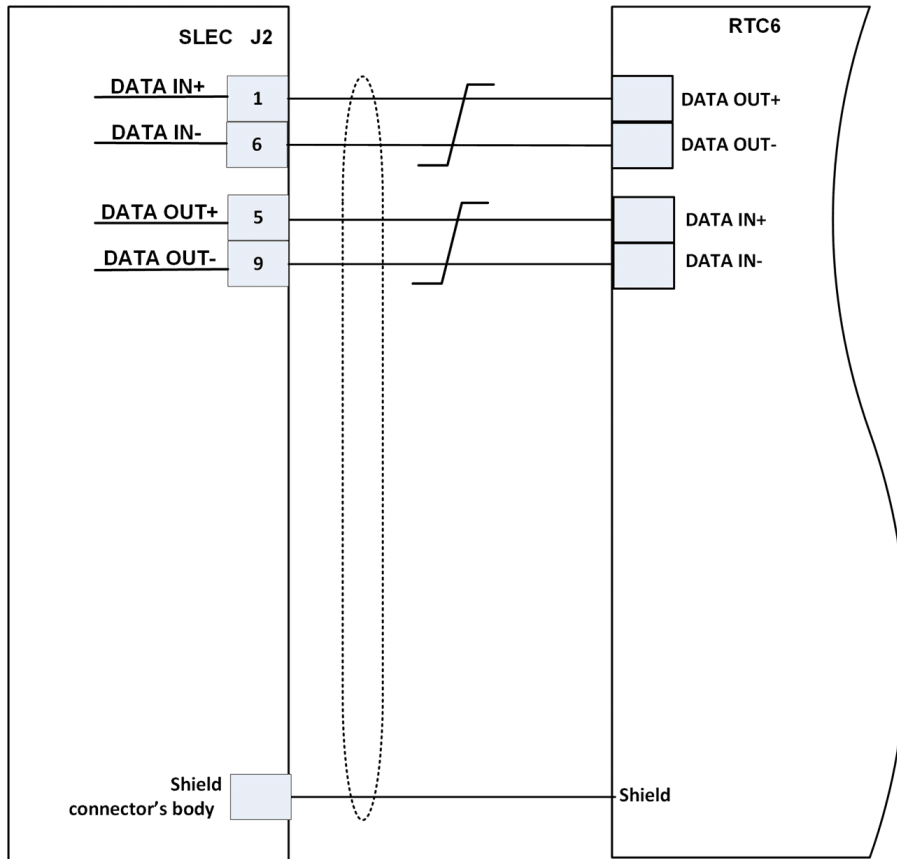


Figure 3-2. J2 - SL2-100 Connection Diagram

3.3 J3 EtherCAT IN / J4 EtherCAT OUT

Label: J3 ETHERCAT IN, J4 ETHERCAT OUT

Connector type: RJ45

Mating connector type: Ethernet plug

Table 3-3 lists the pinouts for the EtherCAT IN J3 and EtherCAT OUT J4 connectors.

Table 3-3. J3 EtherCAT IN / J4 EtherCAT OUT Pinout

Pin	Name	Description
1	TD+	Positive transmit signal
2	TD-	Negative transmit signal
3	RD+	Positive receive signal
4	NC	Not connected
5	NC	Not connected

Pin	Name	Description
6	RD-	Negative receive signal
7	NC	Not connected
8	NC	Not connected

3.4 J5 Control Supply

Label: J5

Connector

- > Manufacturer: Phoenix
- > P/N: MC 1,5/ 3-GF-3,81

Mating connector

- > Manufacturer: Phoenix
- > P/N: MC 1,5/ 3-STF-3,81

The table lists the pinouts for the control supply connector J5.

Table 3-4. J5 Control Supply Pinout

Pin	Name	Description
1	24VDC	+24V dc control supply
2	24V_RTN	24V dc control supply return
3	PE/SHIELD	Electrical Ground

4. Product specifications

4.1 Control Supply Input

Items	Description	Remarks
Designation	CON_SUP CON_RTN.	
Input range	24Vdc±10%	
Maximum Input current	<0.4A @ 21.6V	
Protection	Reverse polarity	



User should connect the control supply via 1A fuse.

4.2 SL2-100 interface

Items	Description	Remarks
Designation	DATA_IN± DATA_OUT±	
Quantity	One set	
Interface	Differential, RS422 receiver Differential, RS422 driver	
Maximum input frequency	6.4MHz	
Input termination	120R	

4.3 GP digital output

Items	Description	Remarks
Designation	OUT_5	
Quantity	8	
Interface	TTL level single-ended	

Items	Description	Remarks
Amplitude	Low (max) 0.44V	
	High (min) 4.1V	
Maximum Output current	5mA per output	
Protection	Short current	

4.4 GP digital inputs

Items	Description	Remarks
Designation	IN_±	
Quantity	8	
Interface	5V±10%, single ended, source	
Input current	<5mA	

4.5 EtherCAT IN / EtherCAT OUT

Items	Description	Remarks
Designation	Transmit: ETH#_TX± Receive: ETH#_RX±	
Quantity	2	EtherCAT Input and Output ports
Interface	EtherCAT protocol	
Speed	100Mbps	

4.6 Dimensions

- > L=134mm
- > D=75.4mm
- > H=31mm (40.6mm with the connectors)

4.7 Weight

- > Total weight is 250g

4.8 Compliance with Standards

4.8.1 Environment

The operational temperature range is 0 to + 40°C.

4.8.2 CE / EMC

- > Certified

4.8.3 RoHS

- > ROHS compatible.

Smarter



Motion

5 HaTnufa St.
Yokne'am Illit 2066717
Israel
Tel: (+972) (4) 654 6440 Fax: (+972) (4) 654 6443

Contact us: sales@acsmotioncontrol.com | www.acsmotioncontrol.com

