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Platinum Lion
Cable Kit

August 2018 (Ver. 1.003)

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Catalog Number

Revision History

Version	Date	Details
Ver. 1.000	Mar 2017	Initial release
Ver. 1.001	Aug 2017	Updated to include option for Micro-D prepared cables
Ver. 1.002	Mar 2018	Description details for Phoenix and FineCable added to Chapters 3, 4, 5,
Ver. 1.003	Aug 2018	Clarification of headings for cables and connectors

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Chapter 1: Introduction

This document provides the cabling details for the cables used to connect the Platinum Lion with the end-user application. The Platinum Lion connection pinouts are provided in the Platinum Lion installation guide.

Most cables come in one length: 2 meters (6 ½ feet).

1.1. Cable Kits

There are two optional cable kits for the Platinum Lion, and their catalog numbers are:

CBL-PLIONKIT01	Cable kit with Power, LAN and USB cables + ECAT and IO's µD-type connectors only to prepare cables
CBL-PLIONKIT02	Full Cable kit with prepared cables and connectors

The cable kits include the following:

Cable Kit	No.	ELMO Part Number	Function
CBL-PLIONKIT01	1	CBL-M12A05P-1.5	CBL-POWER M12&LEADS 1.5M
	1	CBL-M1208PRJ45-2	CBL-LAN M12&RJ45 2M
	1	CBL-M1208P-1	CBL-USB M12&LEADS 1M
	2	JCB-891309F	CONNECTOR CBL MICRO D-TYPE FE 9PIN
	2	JCB-891315F	CONNECTOR CBL MICRO D-TYPE FE 15PIN
	1	JCB-891325F	CONNECTOR CBL MICRO D-TYPE FE 25PIN
	80	JCW-113101F	CONNECTOR CRIMP FE MICRO D-TYPE 28-26AWG
CBL-PLIONKIT02	1	CBL-M12A05P-1.5	CBL-POWER M12&LEADS 1.5M
	1	CBL-M1208PRJ45-2	CBL-LAN M12&RJ45 2M
	1	CBL-M1208P-1	CBL-USB M12&LEADS 1M
	2	CBL-PLION01	CBL-CAN+ECAT MD-SUB&LEADS 2M
	1	CBL-PLION02	CBL-232+I/O1 MD-SUB&LEADS 2M
	1	CBL-PLION03	CBL-GENERAL I/O2 MD-SUB&LEADS 2M
	1	CBL-PLION04	CBL-ANALOG INPUT+DOUT I/O3 MD-SUB&LEADS 2M

The customer should select which kit is preferred where the CBL-PLIONKIT01 kit provides the basic IO connectors and cable kits allowing the customer to customize the cable kit. However, the CBL-PLIONKIT02 kit provides all the cables with default dimensions.

1.1 Environmental Conditions

Feature	Operation Conditions	Range
Ambient Temperature Range	Non-operating conditions	-50 °C to +100 °C (-58 °F to 212 °F)
	Operating conditions	-40 °C to +70 °C (-40 °F to 160 °F)
Temperature Shock	Non-operating conditions	-40 °C to +70 °C (-40 °F to 160 °F) within 3 min
Altitude	Non-operating conditions	Unlimited
	Operating conditions	-400 m to 12,000 m (-1312 to 39370 feet)
Maximum Humidity	Non-operating conditions	Up to 95% relative humidity non-condensing at 35 °C (95 °F)
	Operating conditions	Up to 95% relative humidity non-condensing at 25 °C (77 °F), up to 90% relative humidity non-condensing at 42 °C (108 °F)
Vibration	Operating conditions	20 Hz to 2,000 Hz, 14.6 GRMS
Mechanical Shock	Non-operating conditions	±40g; Half sine, 11 msec
	Operating conditions	±20g; Half sine, 11 msec
Protection level		IP32

1.2. Cable Clamping Tools

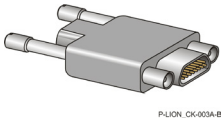
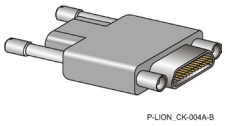
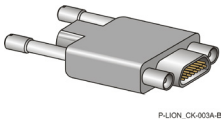
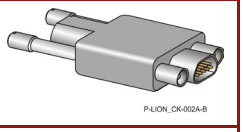
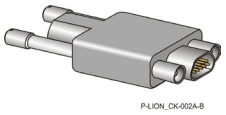
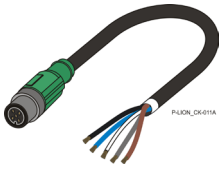
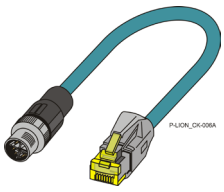
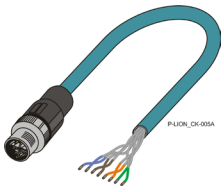
The following describes the recommended cable clamping tools to clamp M12 cables from the Platinum Lion to the chassis.

Tool	Part Number	Diagram
Torque screwdriver	TSD 04 SAC - 1208429	
Tool	SAC BIT M12-D15 - 1208432	

Chapter 2: CBL-PLIONKIT01 Kit Information

2.1. Cables Summary

The following summarizes the cables, their mating connectors, and a diagrammatic example:

Function	General Description	Elmo Mating Connector PN	Diagram
I/O3	MicroD 15p	JCB-891315F	
I/O2	MicroD 25p	JCB-891325F	
I/O1	MicroD 15p	JCB-891315F	
CAN /EtherCAT IN	MicroD 9p	JCB-891309F	
CAN /EtherCAT OUT	MicroD 9p	JCB-891309F	
Power	M12 A-Coding, 5p	CBL-M12A05P-1.5 – 1.5m length CBL-M12A05P-3 – 3.0m length CBL-M12A05P-5 – 5.0m length	
LAN	M12 X-Coding, 8p	CBL-M1208PRJ45-2	
USB	M12 X-Coding, 8p	CBL-M1208P-1	

Chapter 3: Power Input Cable (CBL-M12A05P-1.5)

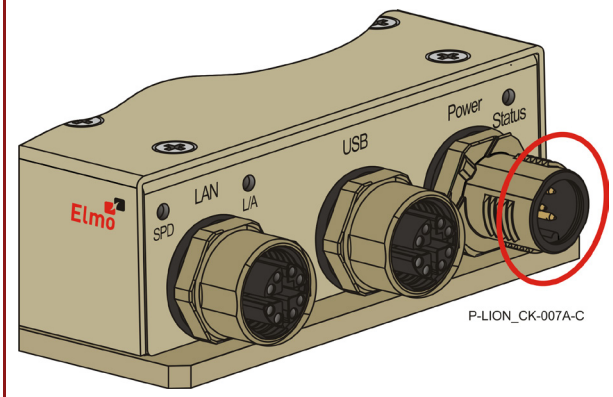
The Power Input Cable (CBL-M12A05P-1.5) is a M12 A-Coding 5 pin connector with an Elmo mating cable and connector PN of the following:

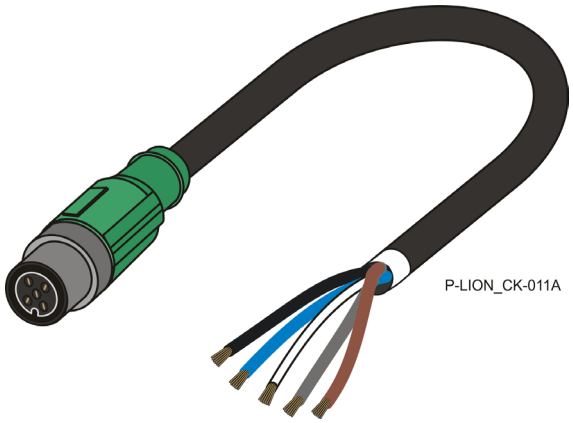
CBL-M12A05P-1.5 – 1.5m length
CBL-M12A05P-3 – 3.0m length
CBL-M12A05P-5 – 5.0m length

The general pinout of the Power Input Cable is as follows:

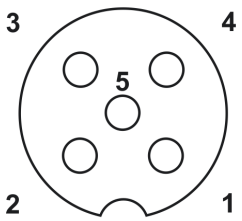
M12 SidePins	Function	Color	End Connector
1	V_{IN}	Brown	Open end
2		White	Open end
3	Return	Blue	Open end
4		Black	Open end
5	PE (Earth)	Grey	Open end

Cable Details





Circuit Diagram



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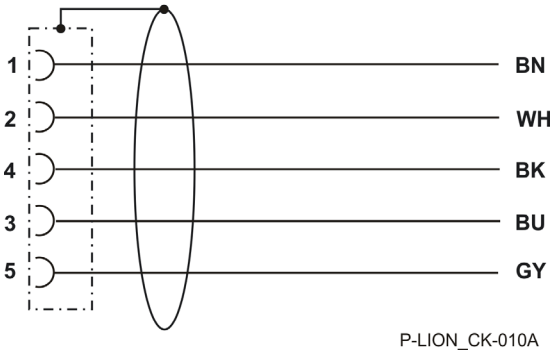


P-LION_CK-010A

Figure 1: Power Input Cable Details

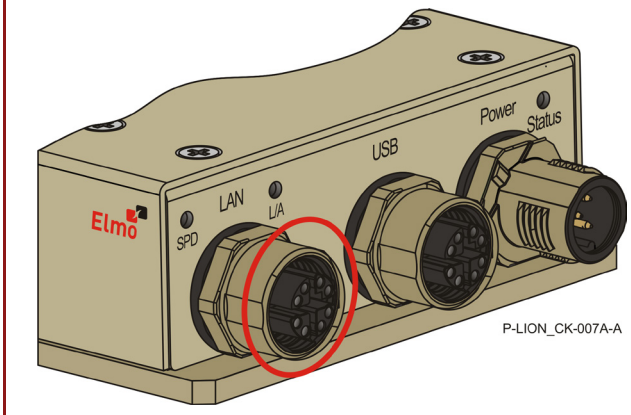
Chapter 4: LAN Cable (CBL-M1208PRJ45-2)

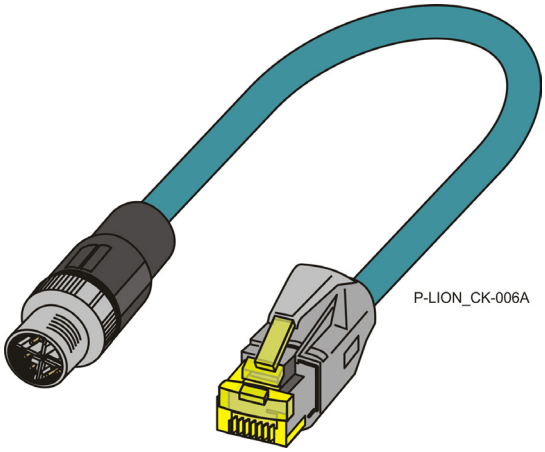
The LAN Cable (CBL-M1208PRJ45-2) is a M12 X-Coding, 8 pin connector mating with a LAN M12 to RJ45 connector's cable which should be a LAN1000-LAN 1000Base-T Levels type cable of the type Elmo PN CBL-M1208PRJ45-2.

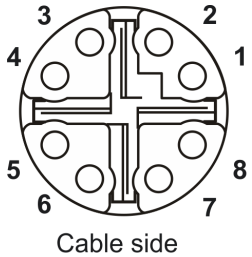
The general pinout of the LAN cable is as follows:

M12 Pins	LAN			RJ45 Pins
1	LAN_TRD 0	TRD0+		1
2		TRD0-		2
3	LAN_TRD 1	TRD1+		3
4		TRD1-		6
7	LAN_TRD 2	TRD2-		5
8		TRD2+		4
5	LAN_TRD 3	TRD3+		7
6		TRD3-		8

Cable Details







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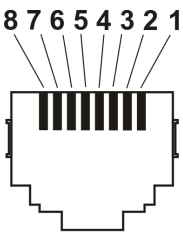

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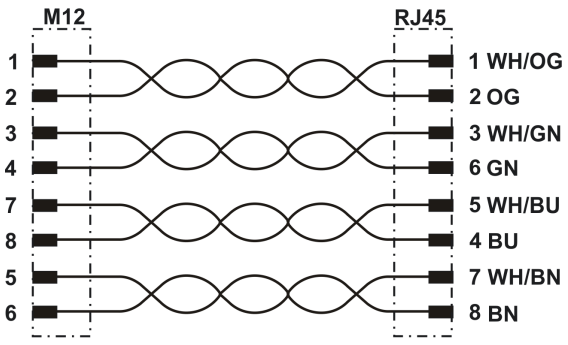
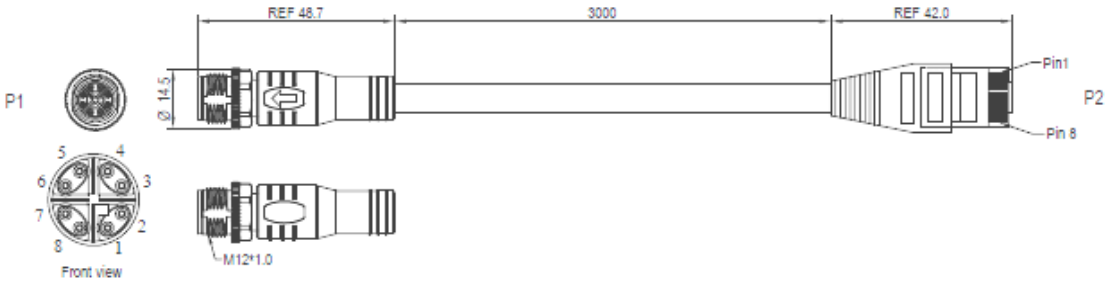


Figure 2: LAN Cable Details


REF 48.7
3000
REF 42.0
P1
P2
Ø 14.5
Pin1
Pin 8
5
4
6
3
7
2
8
1
Front view
M12*1.0

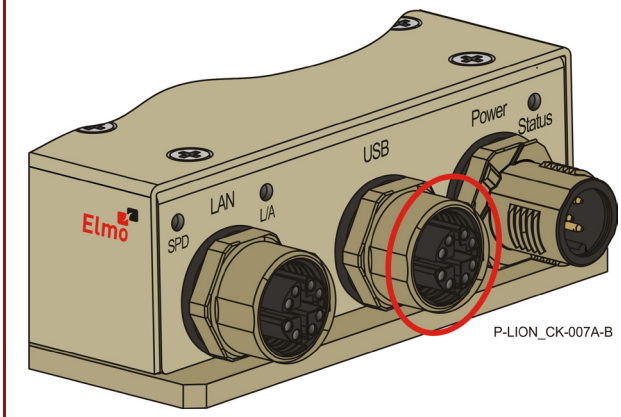
Chapter 5: USB Cable (CBL-M1208P-1)

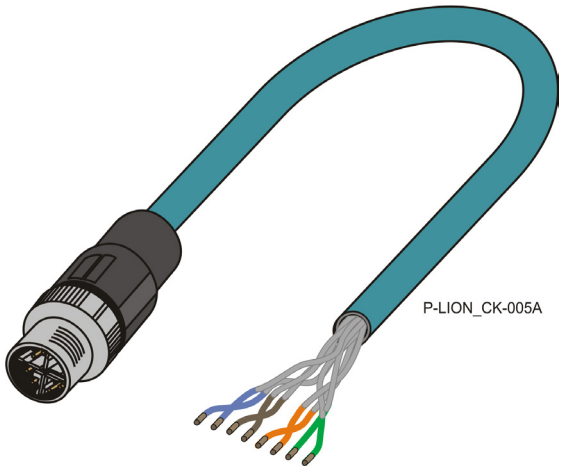
The USB Cable (CBL-M1208P-1) is a M12 X-Coding, 8 pin connector with the Elmo mating cable PN CBL-M1208P-1.

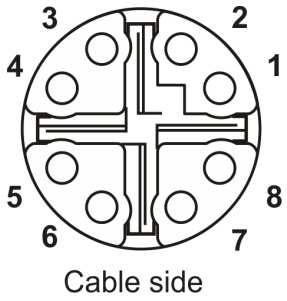
The general pinout of the USB cable is as follows:

M12 Pins	USB			End Connector
1	Supply	USB Return		Open end
2		USB VBUS		Open end
3	USB_TX	USB_TX-		Not to be connected
4		USB_TX+		Not to be connected
5	USB_RX	USB_RX+		Not to be connected
6		USB_RX-		Not to be connected
7	USB_D	USB_D-		Open end
8		USB_D+		Open end

Cable Details







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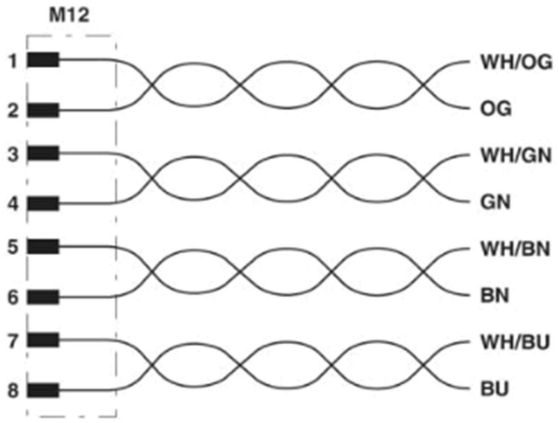


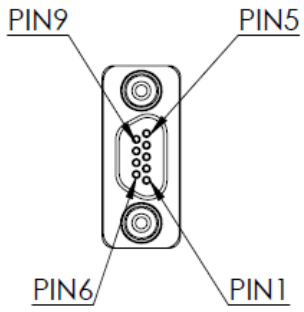
Figure 3: USB Cable Details

Chapter 6: CAN/EtherCAT IN Cable (CBL-PLION01)

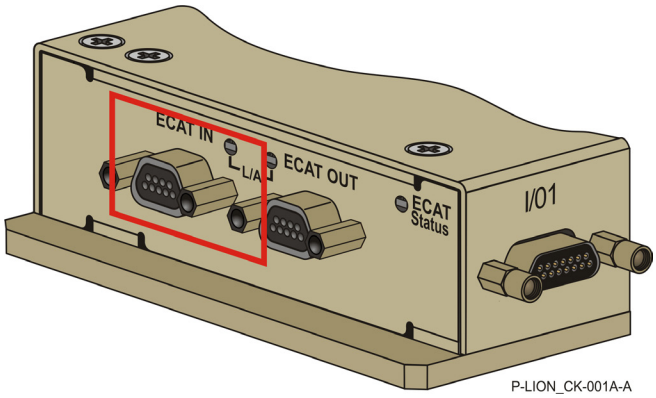
The CAN/EtherCAT IN Cable (CBL-PLION01) is a 4-pair 28-AWG SF/UTP 30V double shielded twisted-pair cable. It is connected using a Micro D-type 9-pin male connector (JCB-891309F) to the Platinum Lion Cable Kit on the motion controller side. The cable is open at the end side so that it can be connected to the controller interface connector.

For customers purchasing the CBL-PLIONKIT01 kit, use the above information to construct the CAN/EtherCAT IN Cable with the pinouts from the table below.

The general pinout of the CAN/EtherCAT IN Cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	ECAT_TX+	BROWN	Twisted Pair 1	 **9-Pin Micro-D Male Connector**
6	ECAT_TX-	WHITE		
2	CANL	GREEN	Twisted Pair 2	
7	CANH	YELLOW		
3	CAN RETURN	PINK	Twisted Pair 3	
8	NC	GREY		
4	NC	-	Not Connected	
9	ECAT_RX+	BLUE	Twisted Pair 4	
5	ECAT_RX-	RED		

Pin Positions



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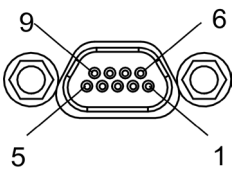
ECAT IN



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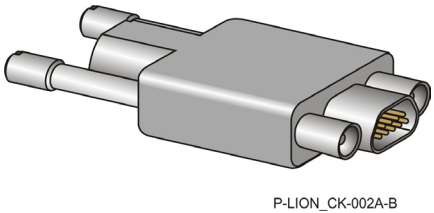
9-Pin Female MicroD-Type


P-LION_CK-002A-B

9-Pin Micro-D Male Connector

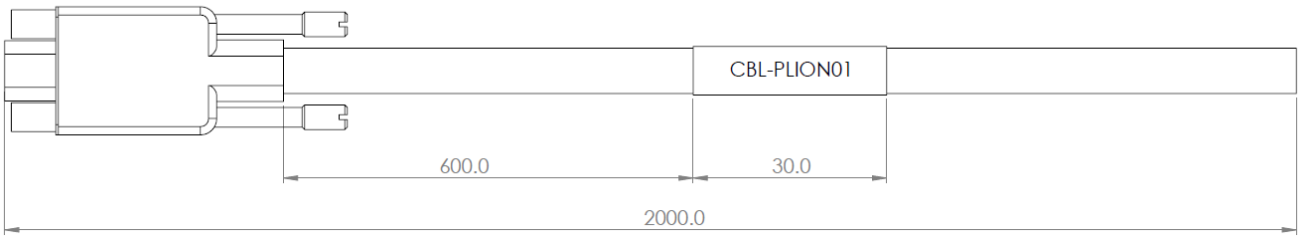


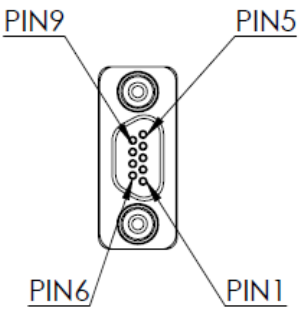
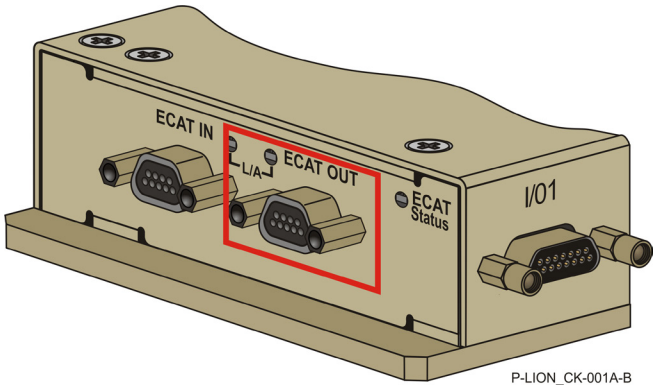
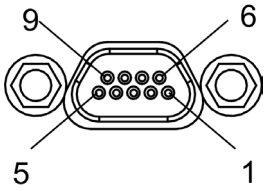
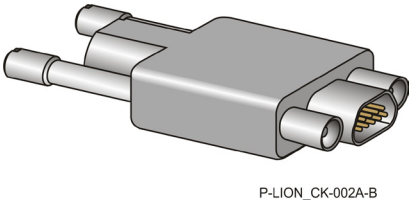
Figure 4: CAN/EtherCAT IN Cable

Chapter 7: CAN/EtherCAT OUT Cable (CBL-PLION01)

The CAN/EtherCAT OUT Cable (CBL-PLION01) is a 4-pair 28-AWG SF/UTP 30V double shielded twisted-pair cable. It is connected using a Micro D-type 9-pin male connector (JCB-891309F) to the Platinum Lion Cable Kit on the motion controller side. The cable is open at the end side so that it can be connected to the controller interface connector.

For customers purchasing the CBL-PLIONKIT01 kit, use the above information to construct the CAN/EtherCAT OUT Cable with the pinouts from the table below.

The general pinout of the CAN/EtherCAT OUT Cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	ECAT_TX+	BROWN	Twisted Pair 1	 **9-Pin Micro-D Male Connector**
6	ECAT_TX-	WHITE		
2	CANL	GREEN	Twisted Pair 2	
7	CANH	YELLOW		
3	CAN RETURN	PINK	Twisted Pair 3	
8	NC	GREY		
4	NC	-	Not Connected	
9	ECAT_RX+	BLUE	Twisted Pair 4	
5	ECAT_RX-	RED		
Pin Positions				
 P-LION_CK-001A-B ECAT OUT  P-LION005A **9-Pin Female MicroD-Type**				 P-LION_CK-002A-B **9-Pin Micro-D Male Connector**

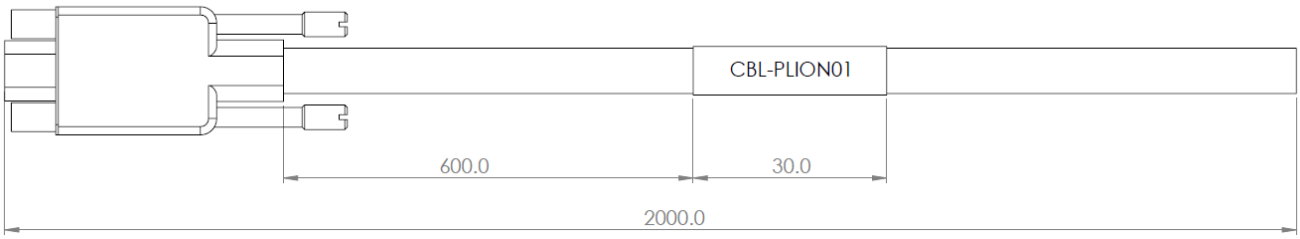


Figure 5: CAN/EtherCAT IN Cable

Chapter 8: RS-232+I/O Cable (CBL-PLION02)

The RS-232+I/O Cable (CBL-PLION02) is a 7-pair 28-AWG SF/UTP 30V double shielded twisted-pair cable. It is connected using a Micro D-type 15-pin male connector (JCB-891315F) to the Platinum Lion Cable Kit on the motion controller side.

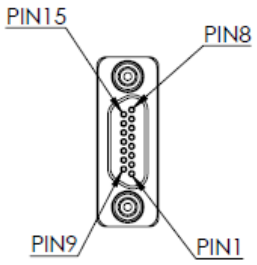
The cable is open at the end side so that it can be connected to the controller interface connector.

For customers purchasing the CBL-PLIONKIT01 kit, use the above information to construct the RS-232+I/O Cable with the pinouts from the table below.

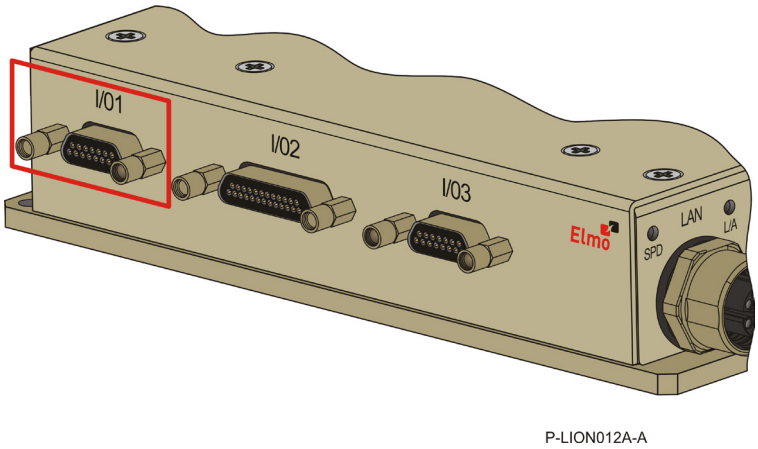
The 15 Pin RS-232+I/O Cable consist of:

- 1x Bi-Directional RS485
- 3x Isolated PLC Digital Input
- 1x RS232 communication

The general pinout of the RS-232+I/O Cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	IO9+	WHITE	Twisted Pair 1	 15-Pin Micro-D Male Connector
2	IO9-	BROWN		
3	IN1+	YELLOW	Twisted Pair 2	
4	IN1-	GREEN		
5	IN2+	GREY	Twisted Pair 3	
6	IN2-	PINK		
7	IN3+	RED	Twisted Pair 4	
8	IN3-	BLUE		
9	RETURN	BLACK	Twisted Pair 5	
15	RS232 RETURN	VIOLET		
10	RESERVED	-	Reserved	
11	RESERVED	GRAY/PINK	Twisted Pair 6	
12	RESERVED	BLUE/RED		
13	RS232_RX	WHITE/GREEN	Twisted Pair7	
14	RS232_TX	BROWN/GREEN		

Pin Positions



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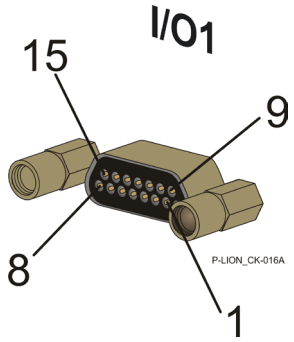
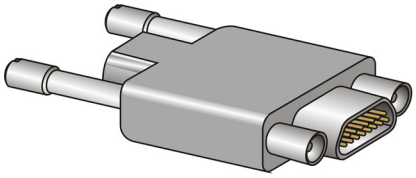


15-Pin Female MicroD-Type



P-LION_CK-003A-B

15-Pin Micro-D Male Connector

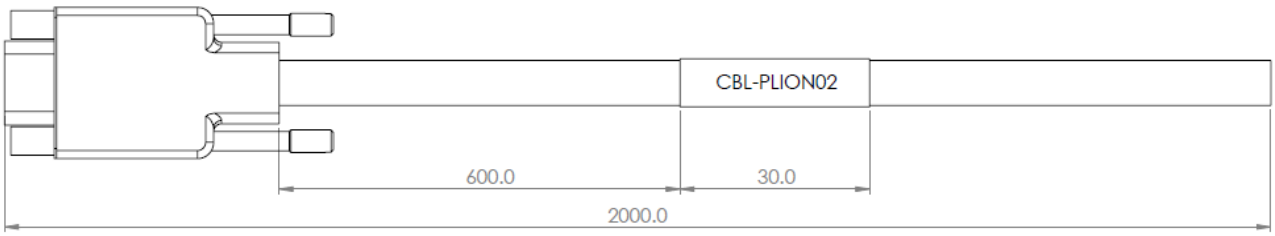


Figure 6: RS-232+I/O Cable

Chapter 9: General I/O Cable (CBL-PLION03)

The General I/O Cable (CBL-PLION03) is a 12-pair 28-AWG straight shield OD<7MM 75DEG BG twisted-pair cable. It is connected using a Micro D-type 25-pin male connector (JCB-891325F) to the Platinum Lion Cable Kit on the motion controller side.

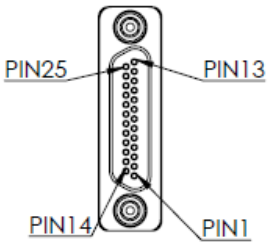
The cable is open at the end side so that it can be connected to the controller interface connector.

For customers purchasing the CBL-PLIONKIT01 kit, use the above information to construct the General I/O Cable with the pinouts from the table below.

The 25 Pin General I/O Cable consist of:

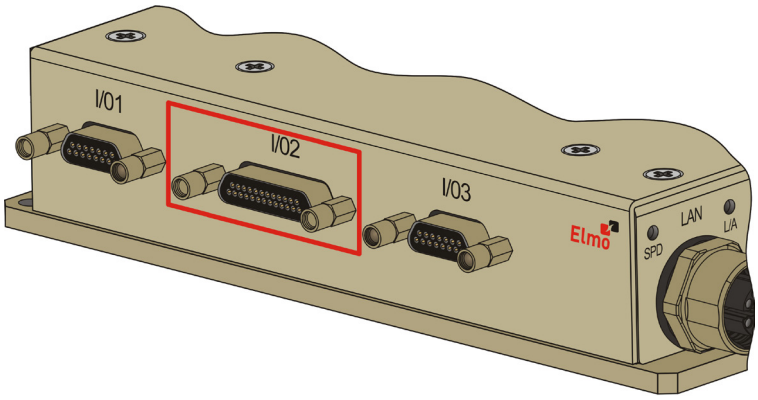
- 4x Bi-Directional RS485
- 4x TTL Output
- 4x TTL Input
- 4x 5V Supply
- 5x 5V Return

The general pinout of the General I/O Cable is as follows:

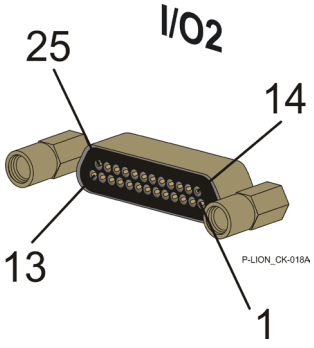
Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	RESERVED	-	Shield	 25-Pin Micro-D Male Connector
14	IO1+	BLACK/RED	Twisted Pair 1	
2	IO1-	RED/BLACK		
15	IO5_IN	BLACK/WHITE	Twisted Pair 2	
3	EXT_OUT5	WHITE/BLACK		
16	5V SUPPLY	BLACK/GREEN	Twisted Pair 3	
4	RETURN	GREEN/BLACK		
17	IO2+	BLACK/BLUE	Twisted Pair 4	
5	IO2-	BLUE/BLACK		
18	IO6_IN	BLACK/YELLOW	Twisted Pair 5	
6	EXT_OUT6	YELLOW/BLACK		
19	5V SUPPLY	BLACK/BROWN	Twisted Pair 6	
7	RETURN	BROWN/BLACK		
20	IO10+	BLACK/ORANGE	Twisted Pair7	
8	IO10-	ORANGE/BLACK		
21	IO7_IN	RED/WHITE	Twisted Pair 8	

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
9	EXT_OUT7	WHITE/RED		
22	5V SUPPLY	RED/GREEN	Twisted Pair 9	
10	RETURN	GREEN/RED		
23	IO4+	RED/BLUE	Twisted Pair 10	
11	IO4-	BLUE/RED		
24	IO8_IN	RED/YELLOW	Twisted Pair 11	
12	EXT_OUT8	YELLOW/RED		
25	5V SUPPLY	RED/BROWN	Twisted Pair 12	
13	RETURN	BROWN/RED		

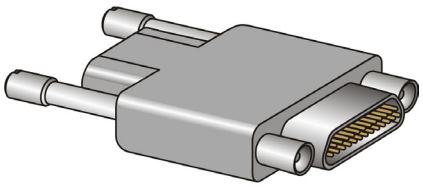
Pin Positions



P-LION012A-B



25-Pin Female MicroD-Type



P-LION_CK-004A-B

25-Pin Micro-D Male Connector

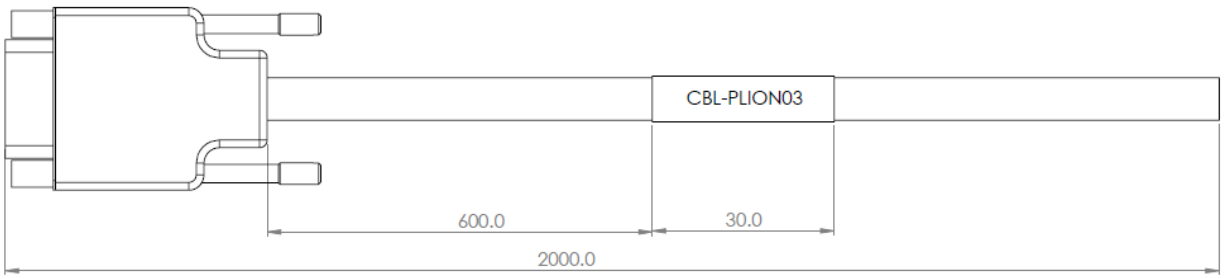


Figure 7: 25 Pin General I/O Cable

Chapter 10: Analog Input+Dout I/O Cable (CBL-PLION04)

The Analog Input+Dout I/O Cable (CBL-PLION04) is a 8-pair 28-AWG SF/UTP 30V double shielded twisted-pair cable. It is connected using a Micro D-type 15-pin male connector (JCB-891315F) to the Platinum Lion Cable Kit on the motion controller side.

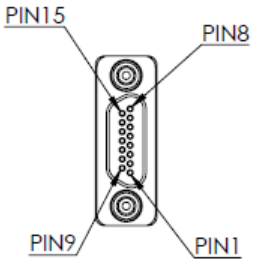
The cable is open at the end side so that it can be connected to the controller interface connector.

For customers purchasing the CBL-PLIONKIT01 kit, use the above information to construct the Analog Input+Dout I/O Cable with the pinouts from the table below.

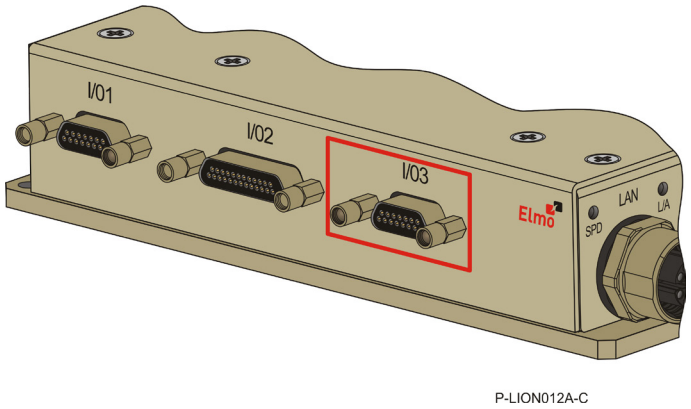
The 15 Pin Analog Input+Dout I/O Cable consist of:

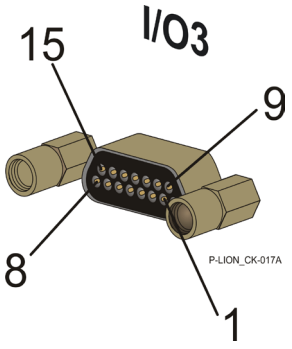
- 4x Analog Inputs 16bit
- 4x Isolated PLC Outputs (Sink or Source)

The general pinout of the Analog Input+Dout I/O Cable is as follows:

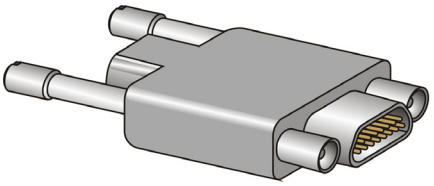
Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	AIN2-	WHITE	Twisted Pair 1	 15-Pin Micro-D Male Connector
2	AIN2+	BROWN		
3	AIN1+	YELLOW	Twisted Pair 2	
4	AIN1-	GREEN		
9	AIN4-	GREY	Twisted Pair 3	
10	AIN4+	PINK		
11	AIN3+	RED	Twisted Pair 4	
12	AIN3-	BLUE		
5	RETURN	WHITE/YELLOW	Twisted Pair 5	
-	-	YELLOW/BROWN		
13	VDD	BLACK	Twisted Pair 6	
8	VDD RET	VIOLET		
6	OUT1	GREY/PINK	Twisted Pair7	
14	OUT2	BLUE/RED		
7	OUT3	WHITE/GREEN	Twisted Pair8	
15	OUT4	BROWN/GREEN		

Pin Positions





15-Pin Female MicroD-Type



15-Pin Micro-D
Male Connector

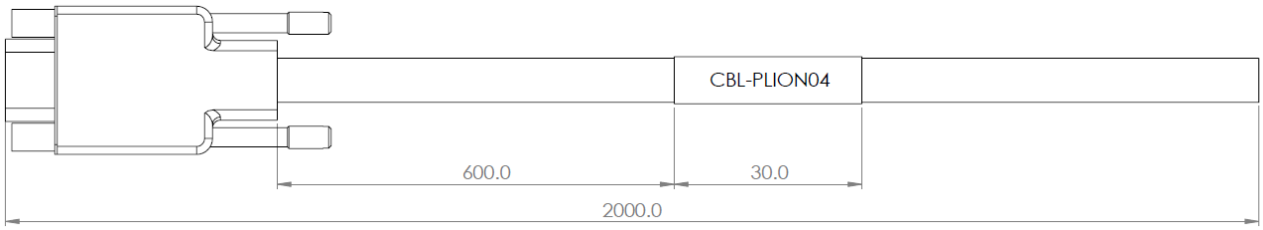


Figure 8: 15 Pin Analog Input + Dout I/O Cable

Chapter 2: Compliance with Standards

The Platinum Lion network motion controller has been developed, produced, tested and documented in accordance with the relevant standards. Elmo Motion Control is not responsible for any deviation from the configuration and installation described in this documentation. Furthermore, Elmo is not responsible for the performance of new measurements or ensuring that regulatory requirements are met.

2.1 Low Voltage Directive

Specification	Details
The related standards below apply to the performance of the servo drives as stated in the environmental conditions paragraph **Error! Reference source not found. Error! Reference source not found.**. The Platinum Lion is not recognized by UL standards, as its maximum voltage is greater than 32 VDC.	
In compliance with **EN 60204-1**	Low Voltage Directive 73/23/EEC
In compliance with **CE 2006/95/EC**	Low-Voltage Directive 2006/95/EC

2.2 Other Compliant Standards

Quality Assurance	
ISO 9001:2008	Quality Management
Design	
• **IPC-D-275** • **IPC-SM-782** • **IPC-CM-770**	Printed wiring for electronic equipment (clearance, creepage, spacing, conductors sizing, etc.)
Reliability	
MIL-HDBK- 217F	Reliability prediction of electronic equipment (rating, de-rating, stress, etc.)
Workmanship	
In compliance with **IPC-A-610**, level 3	Acceptability of electronic assemblies
PCB	
In compliance with **IPC-A-600**, level 3	Acceptability of printed circuit boards

Packing	
In compliance with **EN 100015**	Protection of electrostatic sensitive devices
Environmental	
In compliance with **2002/96/EC**	Waste Electrical and Electronic Equipment regulations (WEEE) **Note:** Out-of-service Elmo drives should be sent to the nearest Elmo sales office.
In compliance with **2002/95/EC** (effective July 2006)	Restrictions on Application of Hazardous Substances in Electric and Electronic Equipment (RoHS)

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