

Gold Solo Hawk

Gold Solo Hawk Cable Kit



July 2016 (Ver. 1.000)

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Document no. MAN-G-SOLHAK-CBLKIT (Ver. 1.000)

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Catalog Number

CBL-GSOLGUIKIT01

Revision History

Version	Date	Details
Ver. 1.000	July 2016	Initial release



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Chapter 1: Introduction

This document provides the wiring details for the cables used to connect Elmo's Gold Solo Hawk servo drive with the end-user application. The servo drive-side pinouts are provided in the *Gold Solo Hawk Digital Servo Drive Installation Guide*.

The cables come in one length: 1 meters (3.28 feet).

1.1. Cable Kit

The catalog number of the Gold Solo Hawk cable kit is CBL-GSOLHAKKIT01.

This cable kit includes the following cables:

ELMO Part Number	Function	No.
CBL-COMM NICO-CON&LEADS 1M	EtherCAT/CAN, USB, RS232/RS422 Communications	1
CBL-STO+I/O+ANALOG NICO&LEADS 1M	PTC Sensor, I/O, STO, & Analog	1
CABLE VL+PORT A, B, C NICO&LEADS 1M	Feedback Ports A, B, C, & VL Aux Power	1
CBL-POWER NICO&LEADS 1M	Power	1
CBL-GROUND TERMINAL RING&LEAD 1M	Ground PE Terminal	2



1.2. Recommended Crimping Pliers Tool

Elmo recommends using the following types of crimping pliers to connect cables to the Gold Solo Hawk.

1.2.1. Signals

Use the Daniel Manufacturing Corporation (DMC) hand crimp tools according to the Nicomatic table below to attach the female terminals to the wires.

Tools recommended		
LF contacts	LF contacts insertion & withdrawal tool	C12935
	Daniels MH800 hand crimp tool	MH800
	Positioner K1692 for Daniels MH800 tool	C12929
	AWG24 crimp tool setting	Position 7
	AWG26 & 28 crimp tool setting	Position 6
HP contacts	HP series 30 contacts removal	12368
	Daniels AF8 hand crimp tool	16459
	Positioner for Daniels AF8 tool	C16460
	AWG16 crimp tool setting	Position 5
	AWG18 & 20 crimp tool setting	Position 4

1.2.2. High Power

Use the Daniel Manufacturing Corporation (DMC) Adjustable Crimp Tool M309 + TP1072-1 positioner

http://www.dmctools.com/Products/standard_adjustable_crimp_tool.html



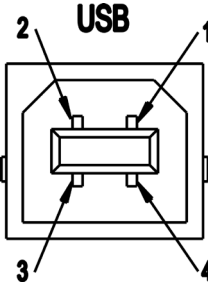


Chapter 2: EtherCAT/CAN, USB, RS232/RS422 Communications Cable (CBL-COMM NICO-CON&LEADS)

The communications cable consists of a 1 meter, 4-grouped cables, 5- twisted-pair 28-AWG shielded cable with a CMM220 2x10 pin 24-28G female plug to connect to the servo drive. The other end of the USB twisted pair set of cables is connected to a USB Type-B, straight 2x2 Pins connector.

With exception for the USB connector at the cable end, the cable is open at the other side so that it can be connected to a PTC Sensor, I/O, STO, & Analog connectors.

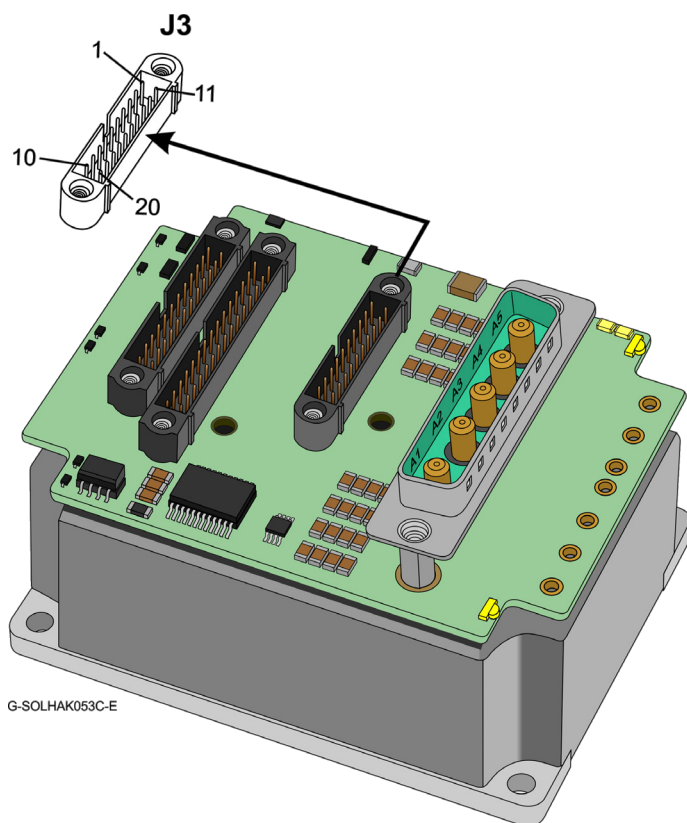
The general pinout of the J3 Communications cable is as follows:

CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
Group 1	J3.1		RS_422_RX+/232TX	WHITE	Pins 1, 2, 10, 20 should be shielded together through a shield sleeve. Cover solder points of Yellow wire + Braid shield with 15x6mm+40mm STB-23.380FT 3/32" black shrink tubing
	J3.2		RS_422_RX-/232RX	RED	
	J3.10		RS422_TX+	BROWN	
	J3.20		RS422_TX-	BLUE	
	J3.18		COMRET + shield sleeve	YELLOW	
Group 2	J3.3	T.PAIR	USB_D+	WHITE	 <p>Pins 3 ÷ 6 should be shielded through a shield sleeve. The shield sleeve should be covered with a shrink tube.</p>
	J3.4		USB_D-	RED	
	J3.5		USB_VBUS	BROWN	
	J3.6		USB_GND	BLUE	
	J3.7		COMRET	BLACK	
Group 3	J3.8	T.PAIR	ETHERCAT_TX+IN	WHITE	Pins 8, 9, 11, 12 should be shielded together through a
	J3.9		ETHERCAT_TX-IN	RED	
	J3.11	T.PAIR	ETHERCAT_RX+IN	BROWN	

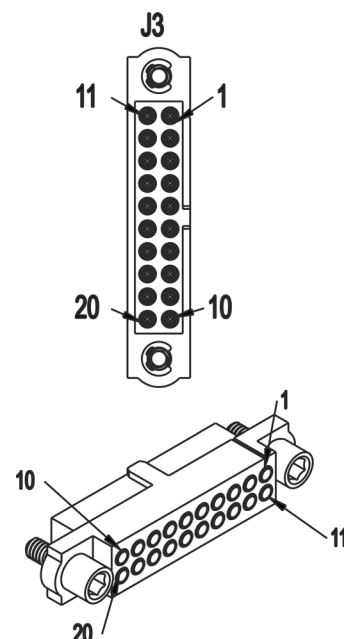


CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
	J3.12		ETHERCAT_RX-IN	BLUE	shield sleeve.
	J3.19		ECAT_SHD	YELLOW	Cover solder points of Yellow wire + Braid shield with 15x6mm+40mm STB-23.380FT 3/32" black shrink tubing.
Group 4	J3.14	T.PAIR	ETHERCAT_TX+OUT/CANH_OUT	WHITE	Pins 14 ÷ 17 should be shielded together through a shield sleeve.
	J3.15		ETHERCAT_TXOUT/CANL_OUT	RED	
	J3.16	T.PAIR	ETHERCAT_RX+OUT/CANH_OUT	BROWN	Cover solder points of Yellow wire + Braid shield with 15x6mm+40mm STB-23.380FT 3/32" black shrink tubing.
	J3.17		ETHERCAT_RXOUT/CANL_OUT	BLUE	
	J3.19		ECAT_SHD	YELLOW	
	J3.13		COMRET	BLACK	

Pin Positions and Cable Connector



J3 Male Connector Pin Assignments



CMM220 2X10PINS 24-28G Female Connector Pin Assignments



Note: The specific functionality of each pin is described fully in the *Gold Solo Hawk Digital Servo Drive Installation Guide*.

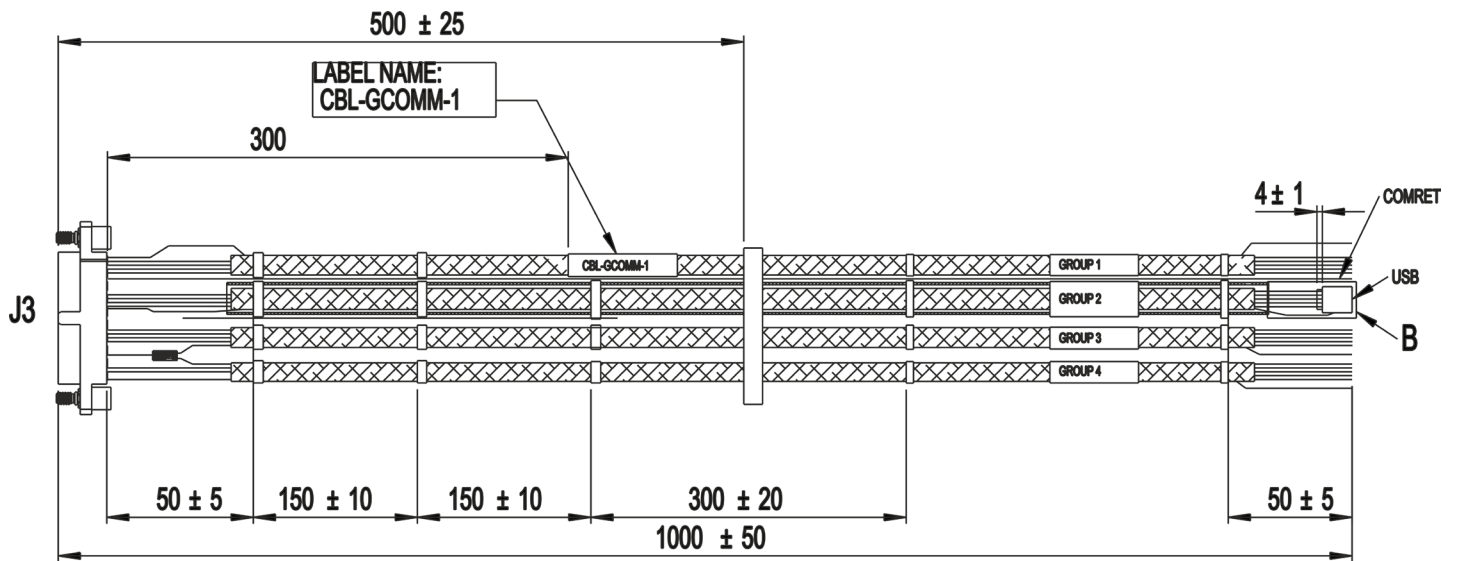


Figure 1: CBL-COMM NICO-CON&LEADS Cable

2.1. Mating Connector

Conn. Name & Description	QTY	Harwin	Nicomatic
CMM220 2X10PINS 24-28G Female Plug	1	M80-4812005	222S20M16



Chapter 3: PTC Sensor, I/O, STO, & Analog Cable (CBL-STO+I/O+ANALOG NICO&LEADS)

The PTC Sensor, I/O, STO, & Analog Cable consists of a 1 meter, 5-grouped cables 28-AWG shielded cable with a CM220 2x12-pin 24-28G female plug to connect to the servo drive.

The cable is open on the other side so that it can be connected to a PTC Sensor, I/O, STO, & Analog connectors.

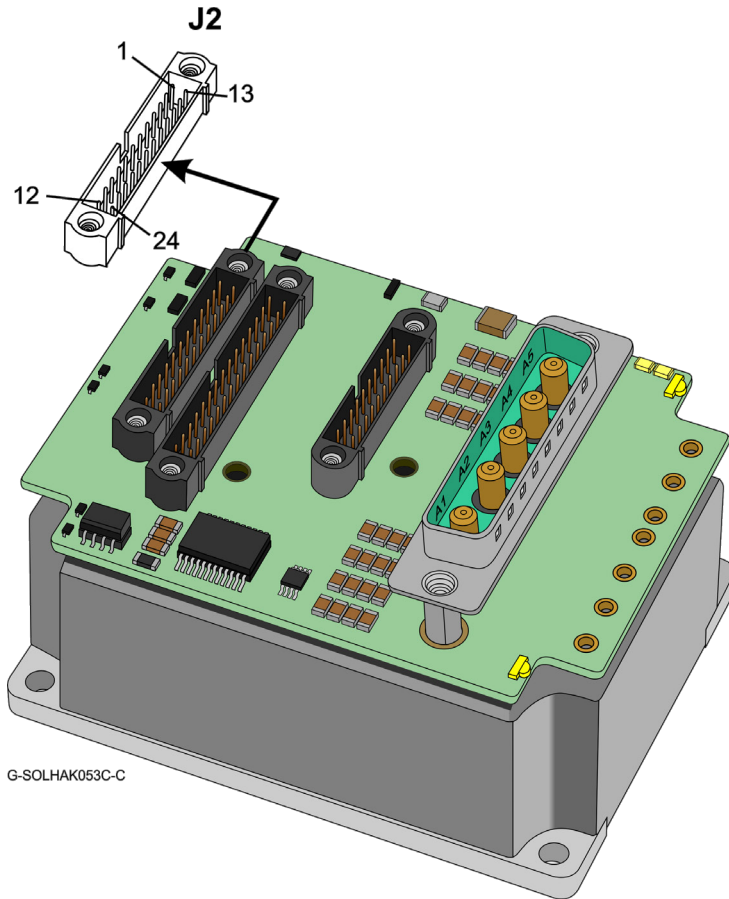
The general pinout of the J2 PTC Sensor, I/O, STO, & Analog Cable is as follows:

CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
Group 1	J2.17		PTC	WHITE	
	J2.18		COMRET	BLACK	
Group 2	J2.1		ANLIN1+	WHITE	Pins 1, 2, 13, 14, 15 should be shielded through the shield sleeve. Cover solder points of yellow wires + Braid shield with 2X 6mm STB-23.380FIT 3/32" black shrink tubing.
	J2.13		ANLIN1-	BLUE	
	J2.2		ANLIN2+	GRAY	
	J2.14		ANLIN2-	GREEN	
	J2.15		ANLRET	BLACK	
	J2.16		ANA_SHIELD	YELLOW	
Group 3	J2.3		STO1	WHITE	
	J2.4		STO2	GREEN	
	J2.5		STO_RET	BLACK	
Group 4	J2.6		INRET1_6	BLACK	
	J2.7		IN1	WHITE	
	J2.8		IN2	RED	
	J2.9		IN3	GRAY	
	J2.10		IN4	GREEN	
	J2.11		IN5	BROWN	
	J2.12		IN6	BLUE	
Group 5	J2.19		OUT1	WHITE	
	J2.20		OUT2	BLUE	
	J2.21		OUT3	GRAY	
	J2.22		OUT4	GREEN	
	J2.23		VDDRET	BLACK	

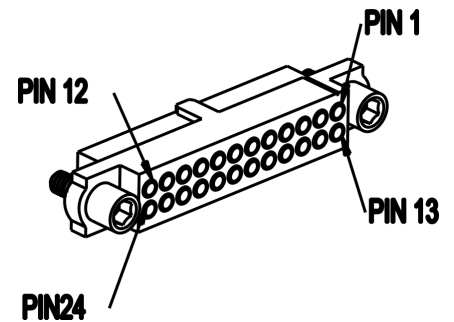


CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
	J2.24		VDD	RED	

Pin Positions and Cable Connector



J2 Male Connector Pin Assignments



**CM220 2x12-pin 24-28G Female
Connector Pin Assignments**



Note: The specific functionality of each pin is described fully in the *Gold Solo Hawk Digital Servo Drive Installation Guide*.

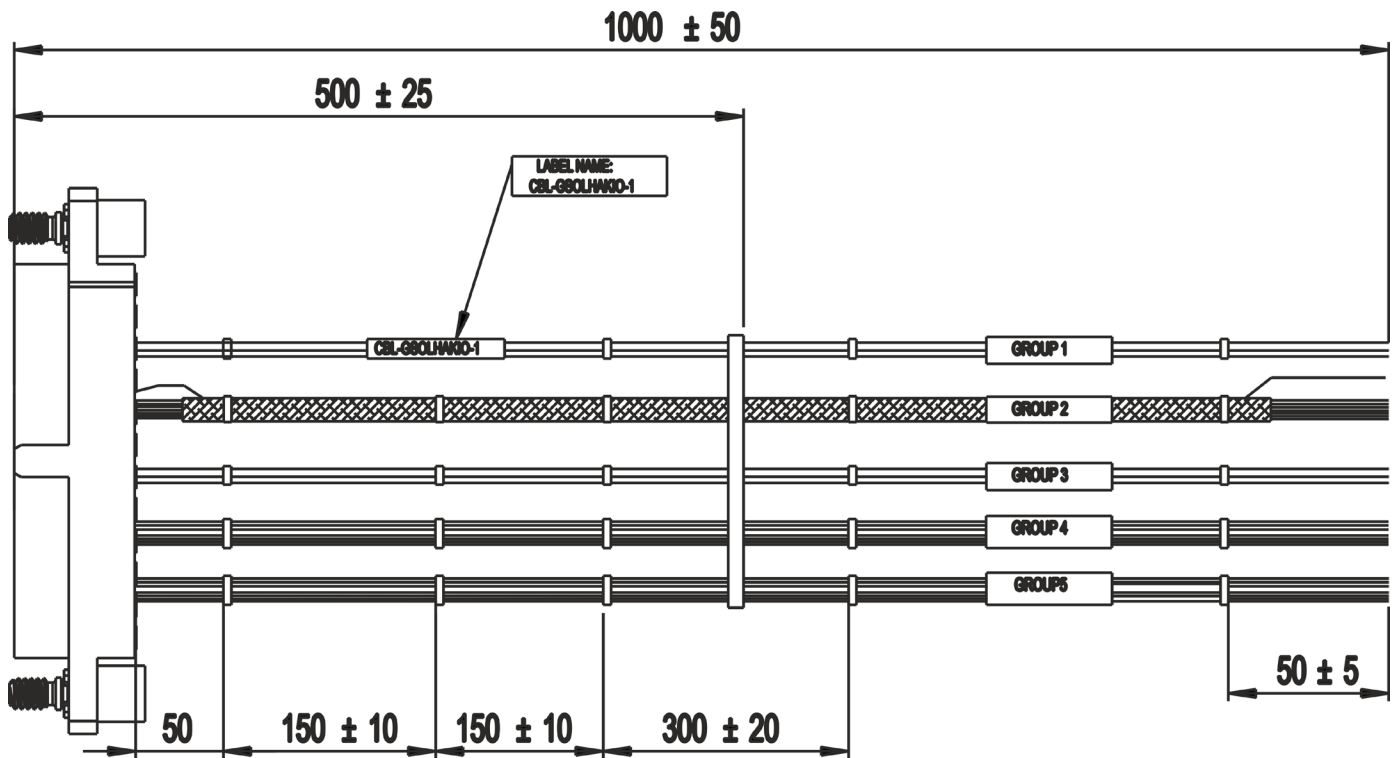


Figure 2: CBL-STO+I/O+ANALOG NICO&LEADS Cable

3.1. Mating Connector

Conn. Name & Description	QTY	Harwin	Nicomatic
CM220 2x12-pin 24-28G female plug	1	M80-4812405	222S24M16 222S24M17



Chapter 4: Feedback Ports A, B, C, & VL Aux Power Cable (CABLE VL+PORT A, B, C NICO&LEADS)

The Feedback Ports A, B, C, & VL Aux Power Cable consists of a 1 meter, 5-grouped cables 28-AWG shielded cable with a CM220 2x15-pin 24-28G female plug to connect to the servo drive.

The cable is open on the other side so that it can be connected to the Feedback Ports A, B, C, & VL Aux Power connectors.

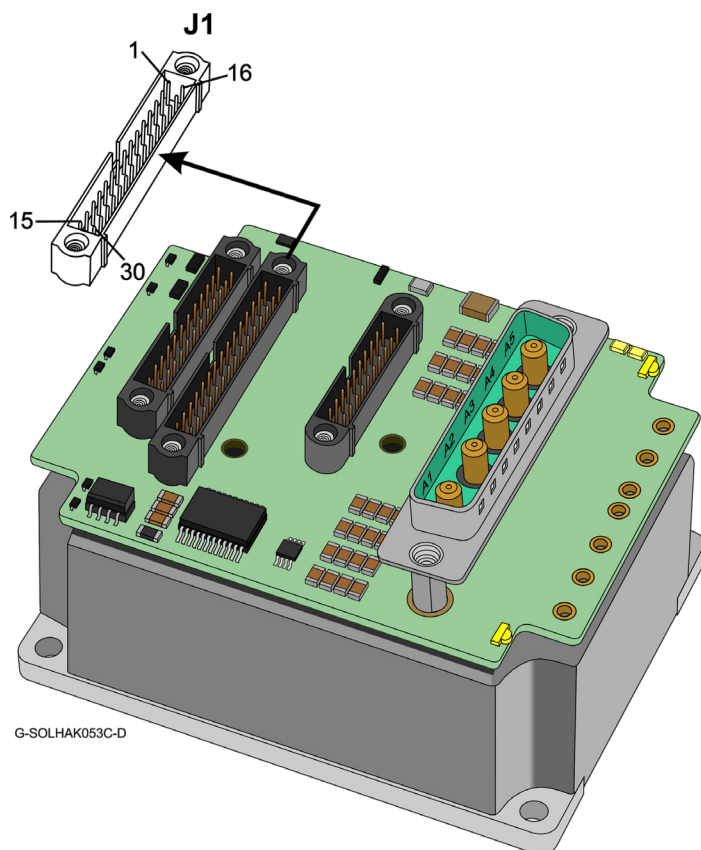
The general pinout of the J1 Feedback Ports A, B, C, & VL Aux Power Cable is as follows:

CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
Group 1	J1.1		PR	BLACK	
	J1.16		VL	RED	
Group 2	J1.8		5V	RED	
	J1.9		COMRET	BLACK	
	J1.27		Ha	WHITE	
	J1.28		Hb	GREEN	
	J1.29		Hc	BROWN	
Group 3	J1.2		PORTA_ENC_A+	WHITE	Pins 2 ÷ 7 should be shielded through the shield sleeve. Cover solder points of yellow wire +Braid shield with 6x6 mm STB-23.380FIT 3/32" black shrink tubing
	J1.3		PORTA_ENC_A-	ORANGE	
	J1.4		PORTA_ENC_B+	GRAY	
	J1.5		PORTA_ENC_B-	GREEN	
	J1.6		PORTA_ENC_I+	BROWN	
	J1.7		PORTA_ENC_I-	BLUE	
	J1.26		PORTA_SHD	YELLOW	
Group 4	J1.17		PORTB_ENC_A+	WHITE	Pins 17 ÷ 24 should be shielded through the shield sleeve. Cover solder points of yellow wire +Braid shield with 6x6 mm STB-23.380FIT 3/32" black shrink tubing.
	J1.18		PORTB_ENC_A-	ORANGE	
	J1.19		PORTB_ENC_B+	GRAY	
	J1.20		PORTB_ENC_B-	GREEN	
	J1.21		PORTB_ENC_I+	BROWN	
	J1.22		PORTB_ENC_I-	BLUE	
	J1.23		5V	RED	
	J1.24		COMRET	BLACK	



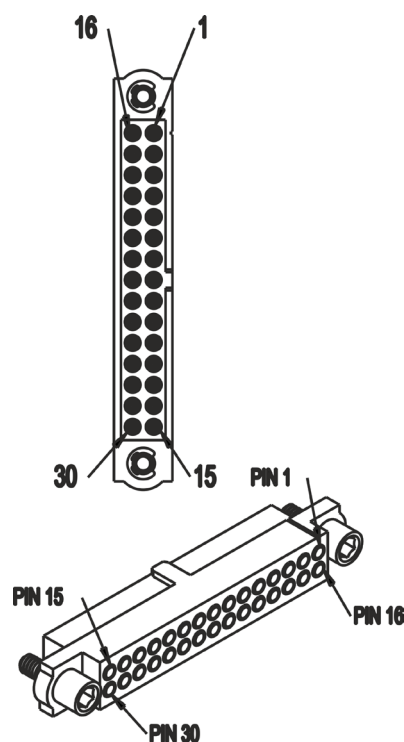
CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
	J1.25		PORTB_SHD	YELLOW	
Group 5	J1.10		PORTC_ENC_A+	WHITE	Pins 10 ÷ 15 should be shielded through the shield sleeve. Cover solder points of yellow wire +Braid shield with 6x6 mm STB-23.380FIT 3/32" black shrink tubing.
	J1.11		PORTC_ENC_A-	ORANGE	
	J1.12		PORTC_ENC_B+	GRAY	
	J1.13		PORTC_ENC_B-	GREEN	
	J1.14		PORTC_ENC_I+	BROWN	
	J1.15		PORTC_ENC_I-	BLUE	
	J1.30		PORTC_SHD	YELLOW	

Pin Positions and Cable Connector



G-SOLHAK053C-D

J1 Male Connector Pin Assignments



CM220 2x15-pin 24-28G Female Connector Pin Assignments



Note: The specific functionality of each pin is described fully in the *Gold Solo Hawk Digital Servo Drive Installation Guide*.

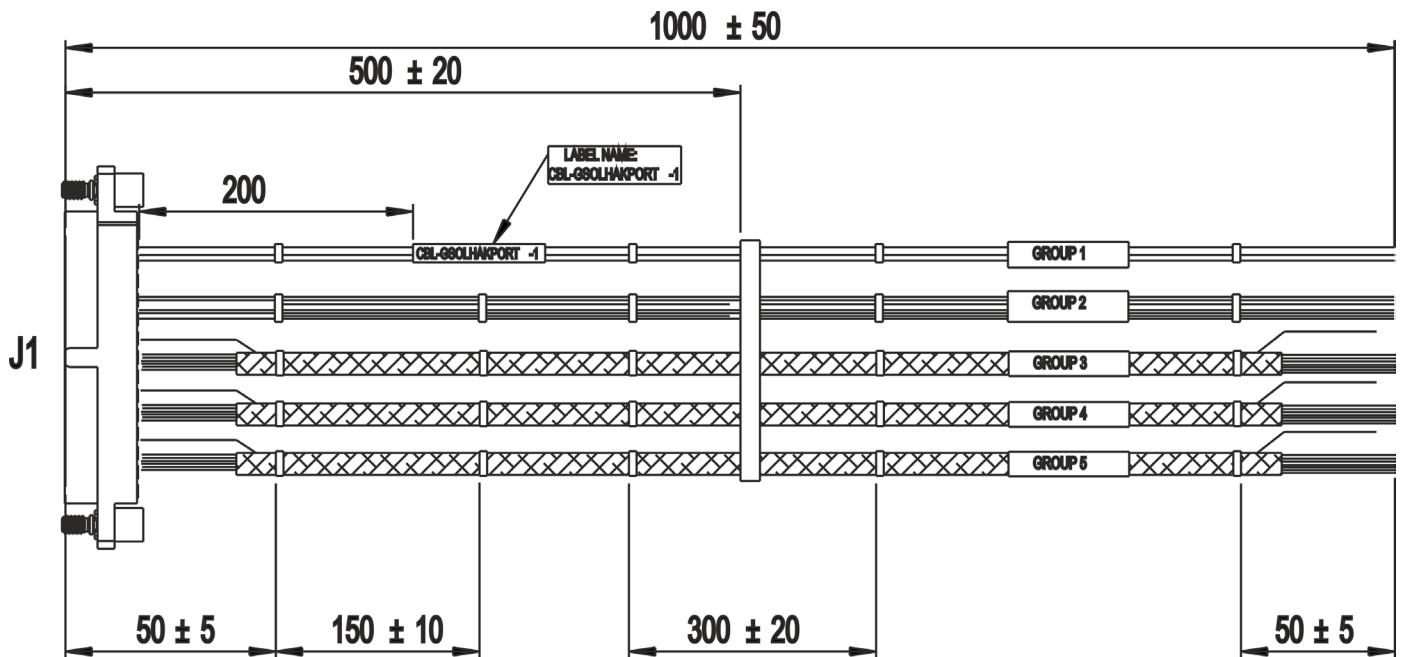


Figure 3: CBL-PORT A+B+C+VL NICO&LEADS Cable

4.1. Mating Connector

Conn. Name & Description	QTY	Harwin	Nicomatic
CM220 2x15-pin 24-28G female plug	1	M80-4813005	222S30M16



Chapter 5: Power Cable (CBL-POWER NICO&LEADS)

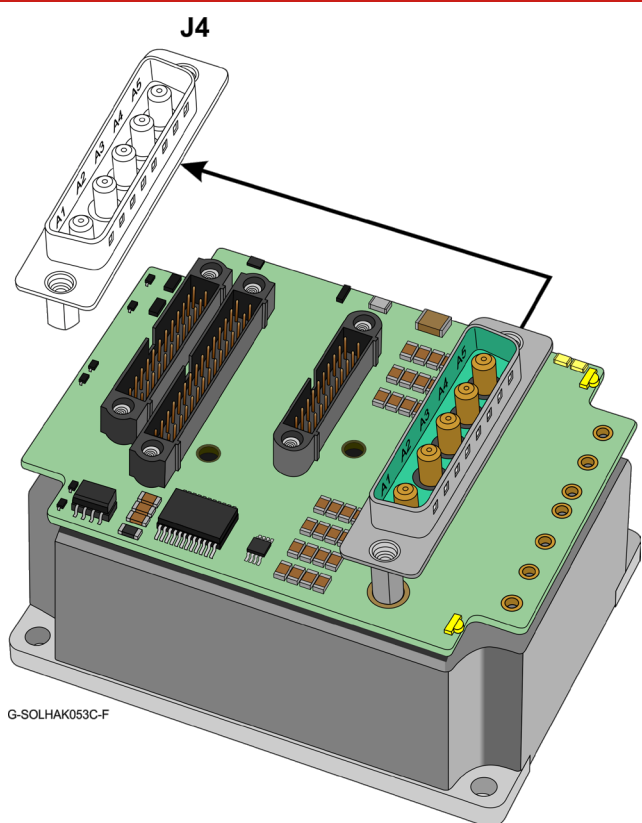
The Power Cable consists of a 1 meter, single group of 10-AWG shielded cable with a D-SUB COMBO 5W5 female plug to connect to the servo drive.

The cable is open on the other side so that it can be connected to the Power connectors.

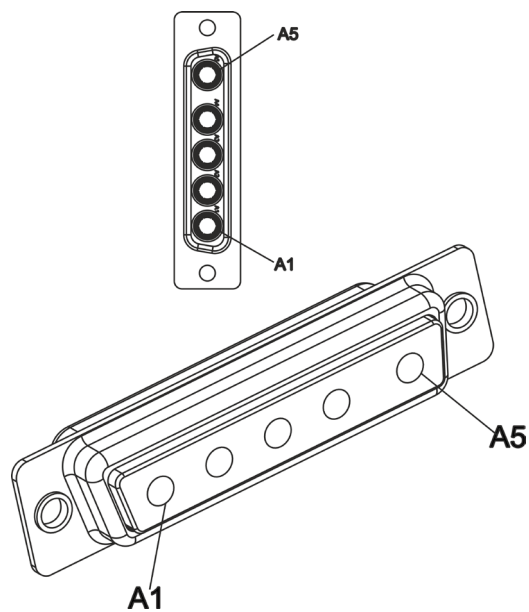
The general pinout of the J4 Power Cable is as follows:

CableGroups	Pin No.	TW	SIGNAL	Wire color	Notes
Group 1	J4.A1		M3	WHITE	
	J4.A2		M2	WHITE	
	J4.A3		M1	WHITE	
	J4.A4		PR	BLACK	
	J4.A5		VP+	RED	

Pin Positions and Cable Connector



J4 Male Connector Pin Assignments



D-SUB COMBO 5W5 Female Connector
Pin Assignments

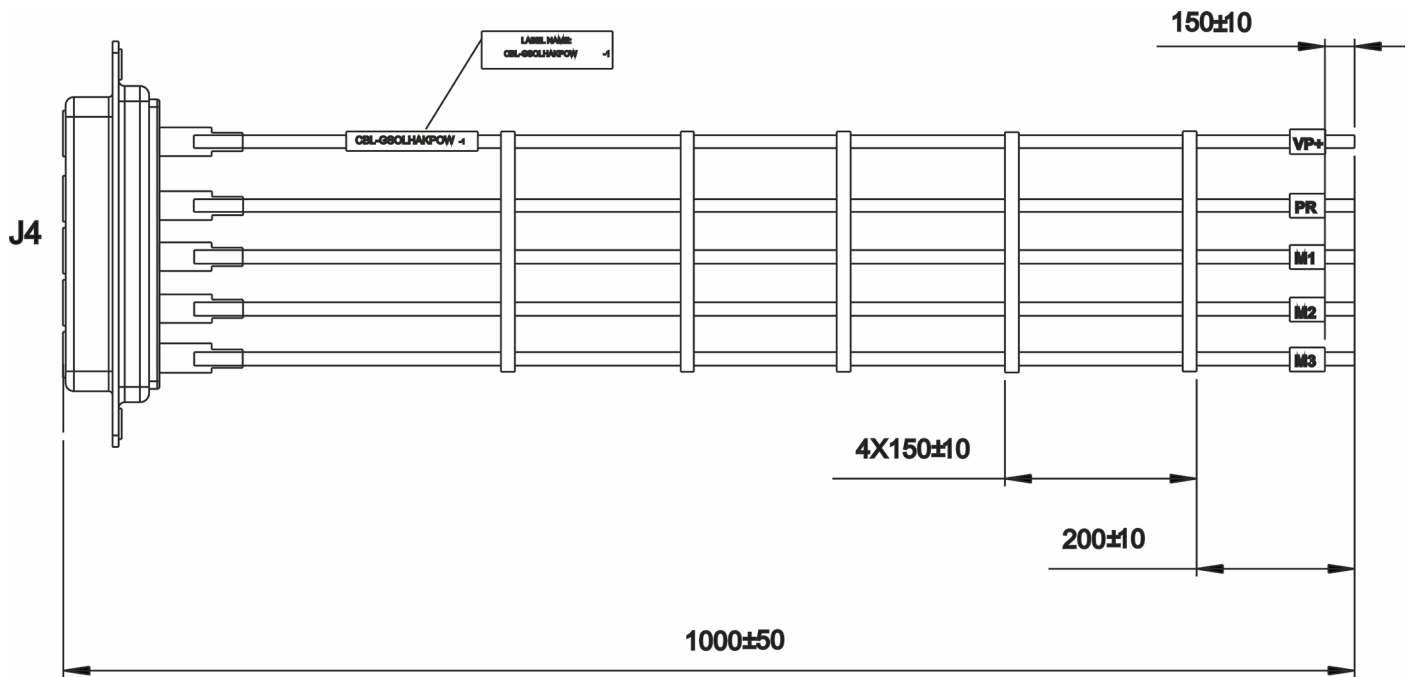


Figure 4: CBL-POWER NICO&LEADS Cable

5.1. Mating Connector

Conn. Name & Description	QTY	CONEC PO
D-SUB COMBO 5W5 female plug	1	3005W5SXX99A10X



Chapter 6: *Ground PE Terminal (CBL-GROUND TERMINAL RING&LEAD)*

The Ground PE Terminal consists of a 1 meter grounding cable with a JCW-0130152 M3 D1.5 red terminal ring to connect to the PE of the servo drive.

The cable is open on the other side so that it can be connected to the PE connectors.

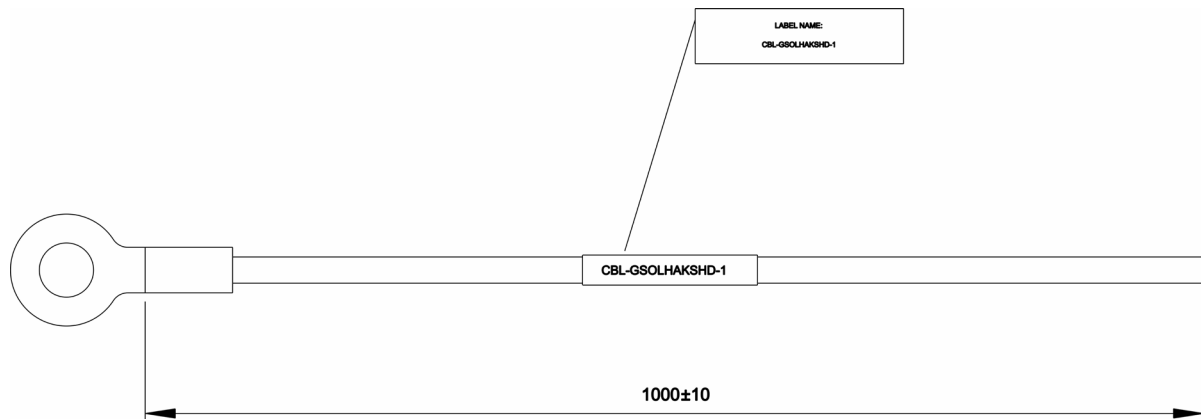


Figure 5: CBL-GROUND TERMINAL RING&LEAD Cable



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