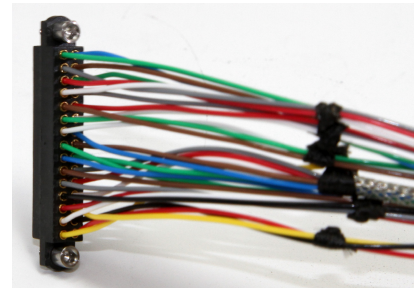
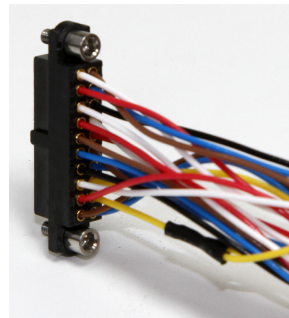
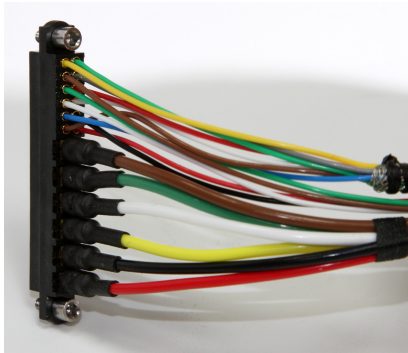


Gold Solo Hornet Cable Kit



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Catalog Number

CBL-GSOLHORKIT01

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Chapter 1: Introduction

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

The cables come in one length: 1.0 meters (3.28 feet).

1.1. Cable Kit (CBL-GSOLHORKIT01)

The catalog number of the Gold Solo Hornet cable kit is CBL-GSOLHORKIT01.

This cable kit includes the following cables:

ELMO Part Number	Function
CBL-GCOMM-1	CABLE COMM CAN G-SOL-HOR, 1.0M
CBL-GCOMM-1	CABLE COMM ECAT G-SOL-HOR, 1.0M
CBL-GSOLHORIO-1	CABLE PORT A+C+I/O G-SOL-HOR, 1.0M
CBL-GSOLHORPOW-1	CABLE POWER CONTROL G-SOL-HOR, 1.0M

1.2. Recommended Tool

If you are creating your own cables, it is recommended that you use the Daniels 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

For further details on the HP Contacts refer to HP – High Powered Contacts in Chapter 5.

All other pin contacts are LF contacts.



Chapter 2: CAN Communications Cable J3 (CBL-GCOMM-1)

The CAN communications Cable consists of a 28-AWG 5-twisted pair shielded cable using a 2x10 pin 24-28G female CMM220 plug to connect to the servo drive. The part number (P/N) of this cable is CBL-GCOMM-1. The USB section of the cable is shrink-wrapped at the USB connector.

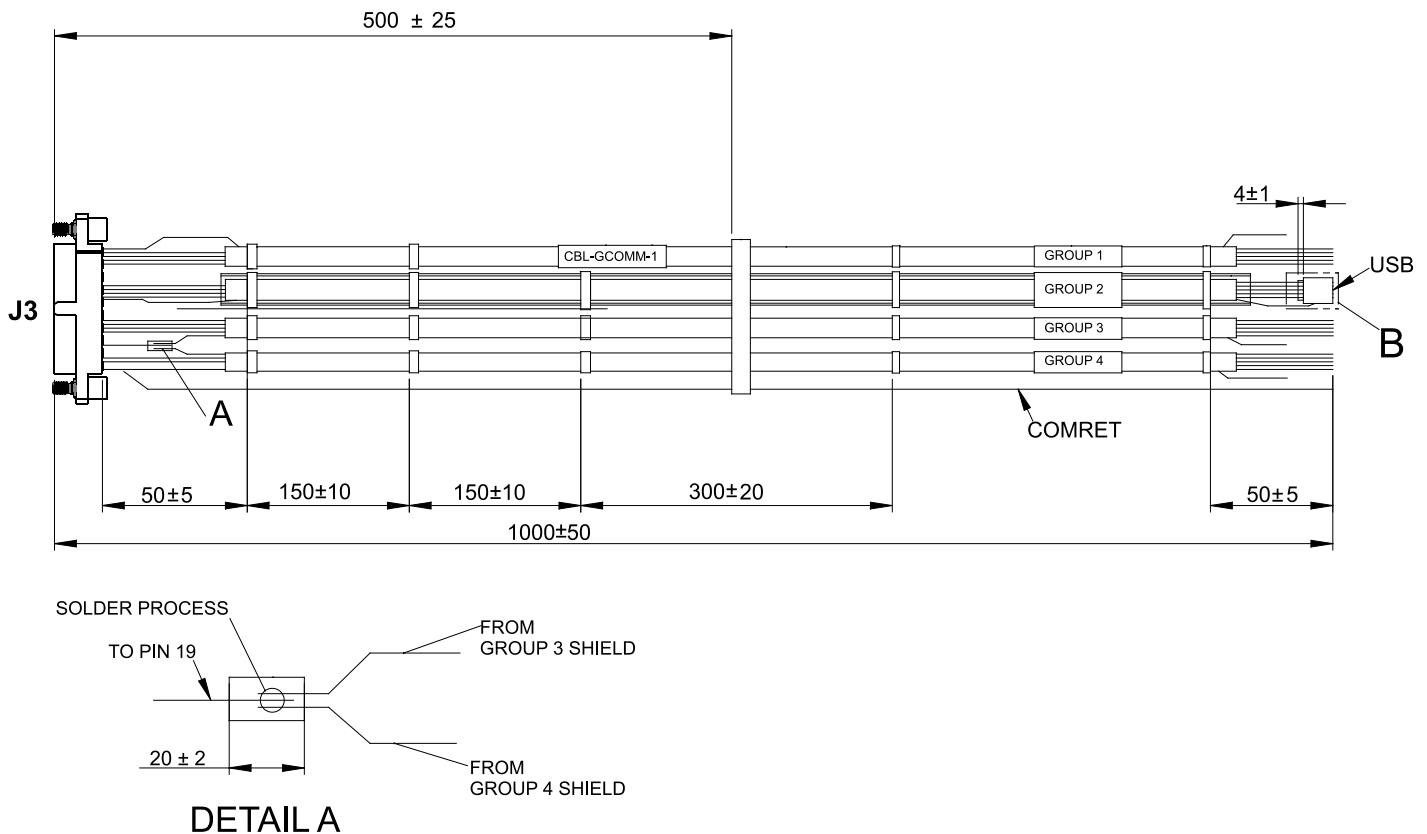


Figure 1: CAN Communication Cable J3

The cable is open on the motor side except for the USB connector, so that it can be connected to the controller interface connector. The USB connector is as follows:

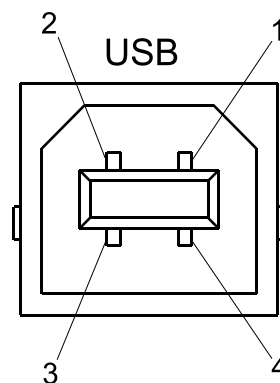
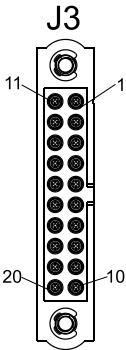
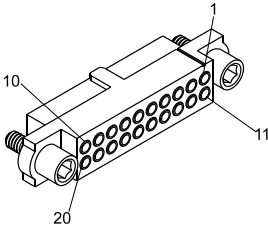


Figure 2: USB Type B ELMO P/N: JCB-109704FG

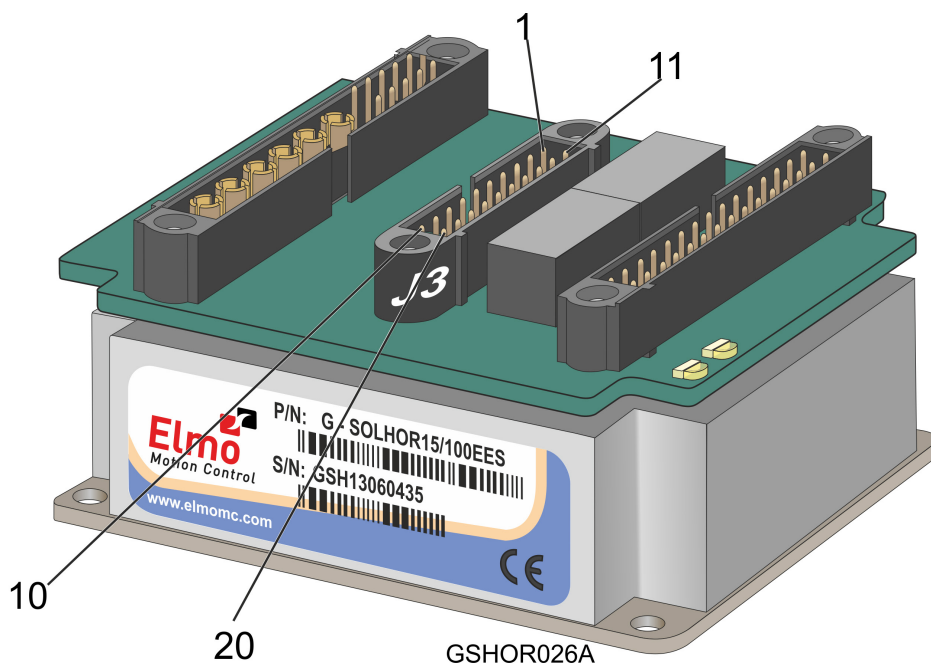


The general pinout of the CBL-GCOMM-1 CAN communications cable is as follows:

Pin No.	Signal	Color	Cable Groups & Shielded Wire	Twisted Pair	Plug
1	RS422_RX+/RS-232_TX	White	Group 1	Twisted pair	  20-Pin Female Plug
2	RS422_RX-/RS-232_RX	Red	Pins 1, 2, 10, 20 should be shielded together through a shield sleeve		
3	USBD+	White	Group 2		
4	USBD-	Red	Pins 3 + 6 should be shielded through a shield sleeve		
5	USB_VBUS	Brown			
6	USB_GND	Blue			
7	COMRET+ SHIELD SLEEVE	Black	Group 2 To USB connector body		
8	Not Connected	White	Group 3	Twisted pair	
9	Not Connected	Red			
10	RS422_TX+	Brown	Group 1		
11	Not Connected	Brown	Group 3	Twisted pair	
12	Not Connected	Blue			
13	COMRET	Black			
14	CANH_OUT	White	Group 4	Twisted pair	
15	CANL_OUT	Red	Pins 14 + 17 should be shielded together through a shield sleeve	Twisted pair	
16	CANH_OUT	Brown			
17	CANL_OUT	Blue			
18	COMRET+ SHIELD SLEEVE	Yellow	Group 1		
19	PE+ SHIELD SLEEVE (CAN SHIELD)	Yellow	Group 4		
20	RS422_TX-	Blue	Group 1		



Pin Positions



Note: The specific functionality of each pin is described fully in the *Gold Solo Hornet Installation Guide*.

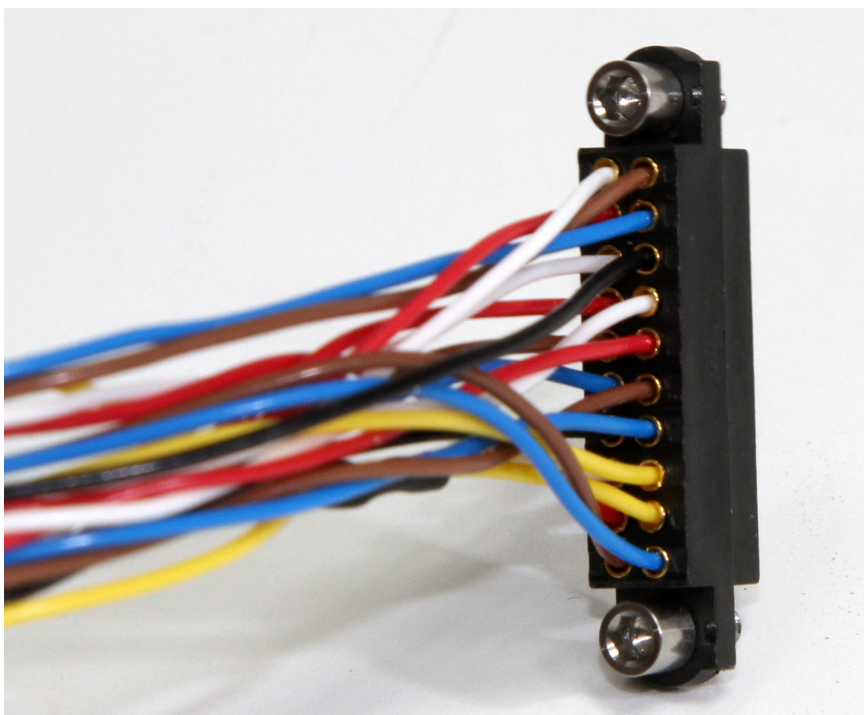


Figure 3: 8-Twisted Pair Shielded Cable (Part No. CBL-GCOMM-1)



2.1. Mating Connector

The following table and drawings describes the component construction and required preparation of the female CAN, RS-422/RS-232, USB cable and connector.

Manufacturer Name	Manufacturer Part Number	Description
Harwin	M80-4812005	PLUG CMM220 2X10 PINS 24-28G FEMALE AND CONTACTS
Nicomatic	222S20M16	

Cable Drawing

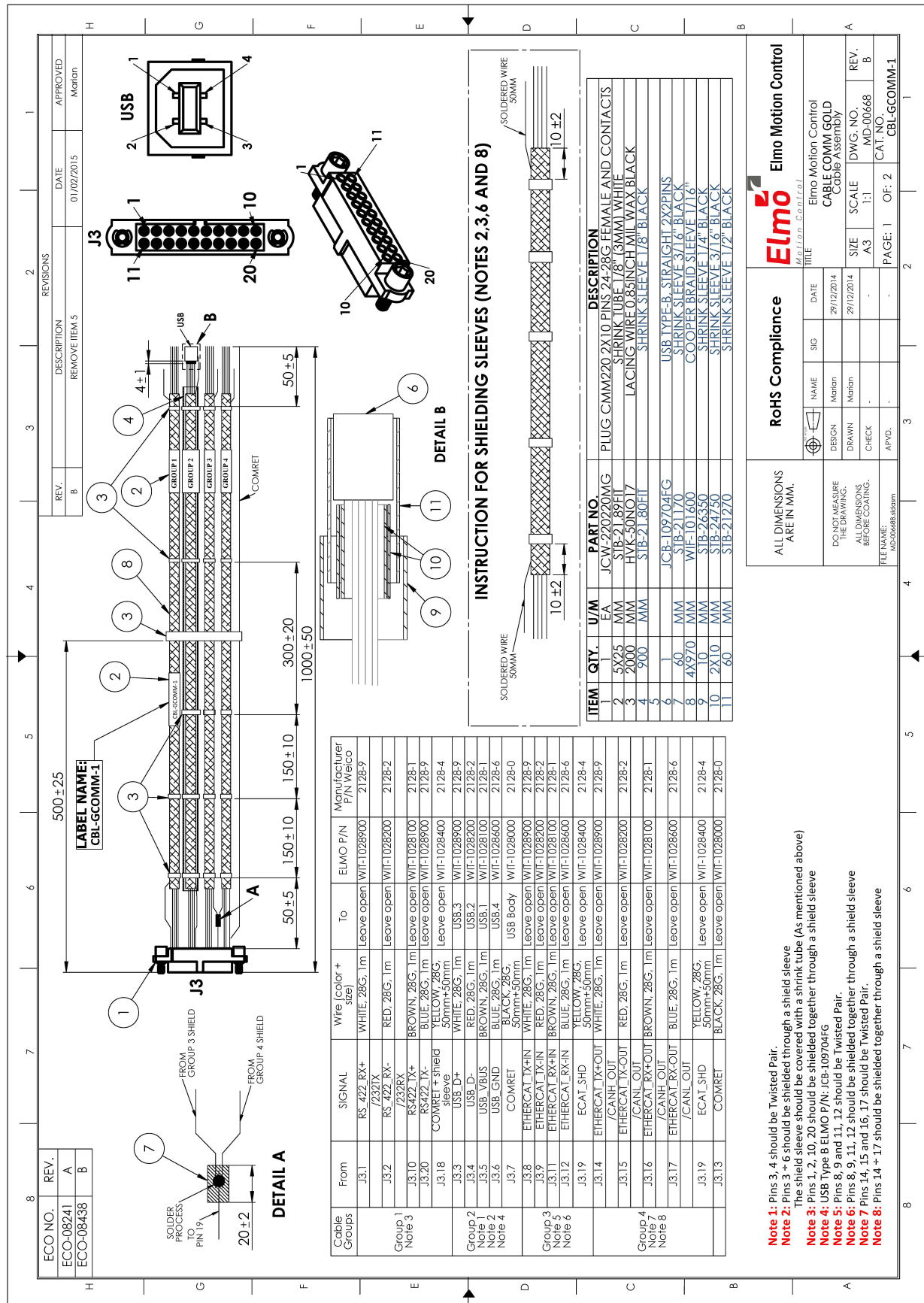


Figure 4: CBL-GCOMM-1 Drawing



Chapter 3: EtherCAT Communication Cable J3 (CBL-GCOMM-1)

The EtherCAT communications Cable consists of a 28-AWG 5-twisted pair shielded cable using a 2x10 pin 24-28G female CMM220 plug to connect to the servo drive. The part number (P/N) of this cable is CBL-GCOMM-1. The USB section of the cable is shrink-wrapped at the USB connector.

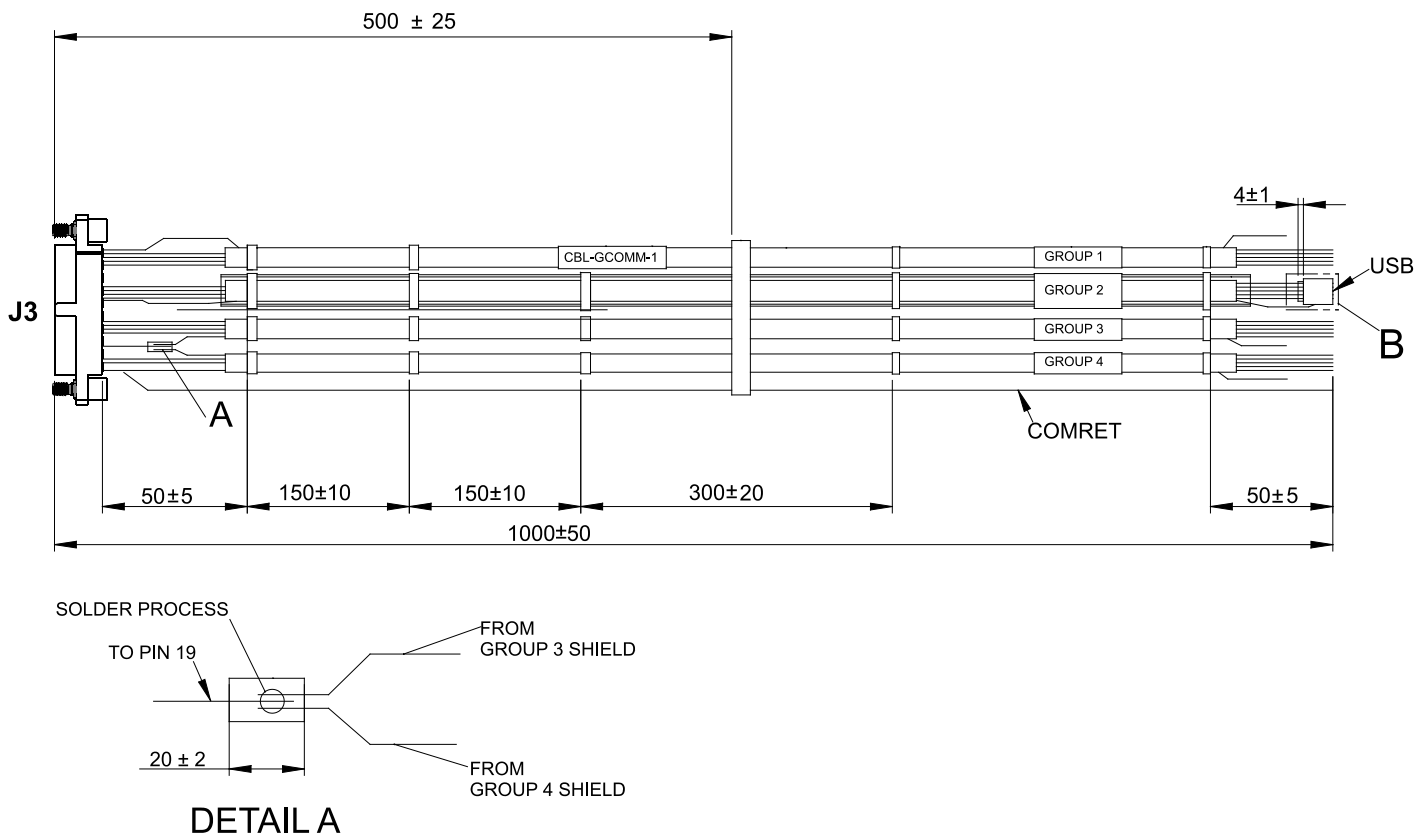


Figure 5: EtherCAT Communication Cable J3

The cable is open on the motor side except for the USB connector, so that it can be connected to the controller interface connector. The USB connector is as follows:

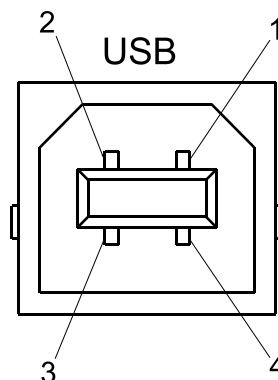
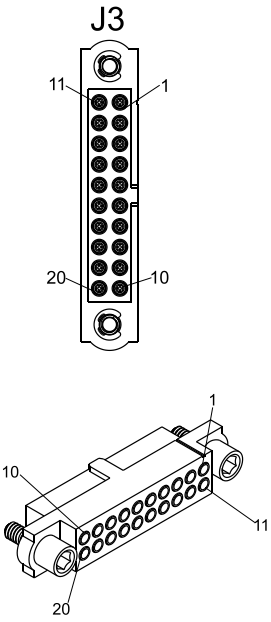


Figure 6: USB Type B ELMO P/N: JCB-109704FG

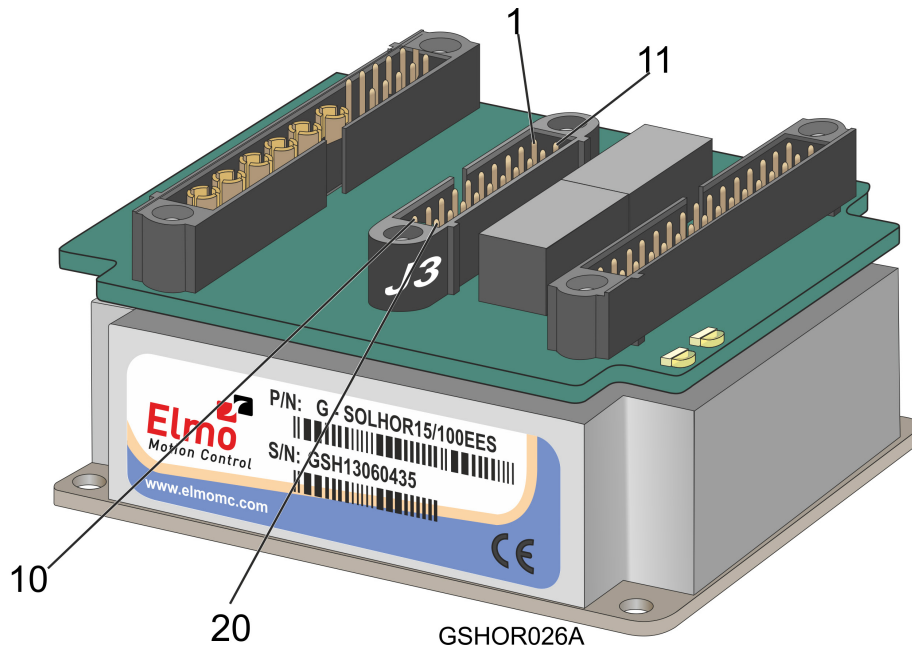


The general pinout of the CBL-GCOMM-1 EtherCAT communications Cable is as follows:

Pin No.	Signal	Color	Cable Groups & Shielded Wire	Twisted Pair	Plug
1	RS422_RX+/RS-232_TX	White	Group 1		 20-Pin Female Plug
2	RS422_RX-/RS-232_RX	Red	Pins 1, 2, 10, 20 should be shielded together through a shield sleeve		
3	USBD+	White	Group 2	Twisted pair	
4	USBD-	Red	Pins 3 + 6 should be shielded through a shield sleeve		
5	USB_VBUS	Brown			
6	USB_GND	Blue			
7	COMRET+ SHIELD SLEEVE	Black	Group 2 To USB connector body		
8	ECAT_TX+ IN/ Ethernet_TX+	White	Group 3	Twisted pair	
9	ECAT_TX- IN/ Ethernet_TX-	Red	Pins 8, 9, 11, 12 should be shielded together through a shield sleeve		
10	RS422_TX+	Brown	Group 1		
11	ECAT_RX+ IN/ Ethernet_RX+	Brown	Group 3	Twisted pair	
12	ECAT_RX- IN/ Ethernet_RX-	Blue			
13	COMRET	Black			
14	ECAT_TX+ OUT	White	Group 4	Twisted pair	
15	ECAT_TX- OUT	Red	Pins 14 + 17 should be shielded together through a shield sleeve		
16	ECAT_RX+ OUT	Brown		Twisted pair	
17	ECAT_RX- OUT	Blue			
18	COMRET+ SHIELD SLEEVE	Yellow	Group 1		
19	PE+ SHIELD SLEEVE (ECAT SHIELD)	Yellow	Group 3 Group 4		
20	RS422_TX-	Blue	Group 1		



Pin Positions



Note: The specific functionality of each pin is described fully in the *Gold Solo Hornet Installation Guide*.

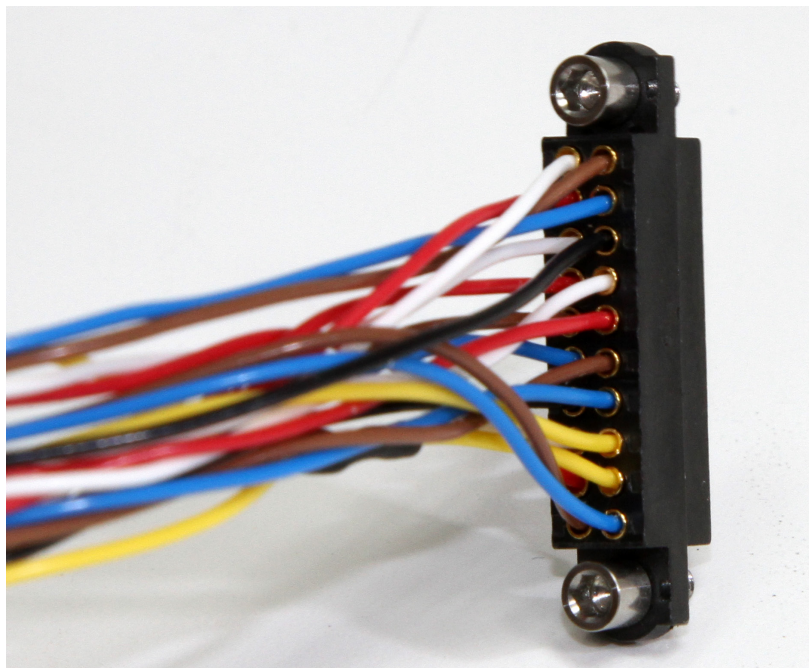


Figure 7: 8-Twisted Pair Shielded Cable (Part No. CBL-GCOMM-1)



3.1. Mating Connector

The following table and drawings describes the component construction and required preparation of the female EtherCAT, RS422/RS-232, USB communications cable and connector.

Manufacturer Name	Manufacturer Part Number	Description
Harwin	M80-4812005	PLUG CMM220 2X10 PINS 24-28G FEMALE AND CONTACTS
Nicomatic	222S20M16	



Cable Drawing

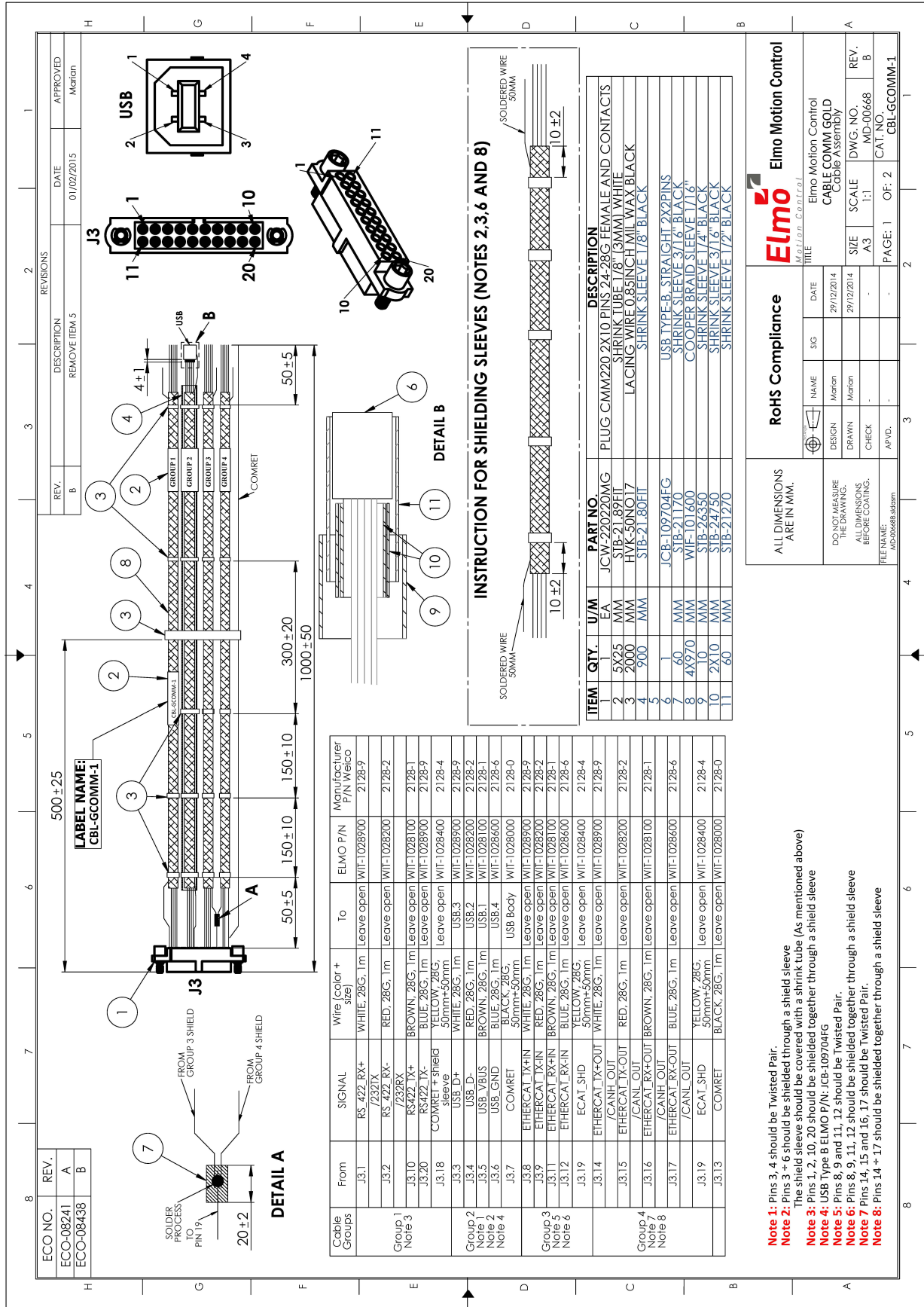


Figure 8: CBL-GCOMM-1 Drawing



Chapter 4: Auxiliary Power, Port A, C, STO, Analog, & I/O Cable J2 (CBL-GSOLHORIO-1)

The Auxiliary Power, Port A, C, STO, Analog, & I/O cable is a 28-AWG shielded cable using a 2x15 pin 24-28G female CMM220 plug to connect to the servo drive. The part number (P/N) of this cable is CBL-GSOLHORIO-1.

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

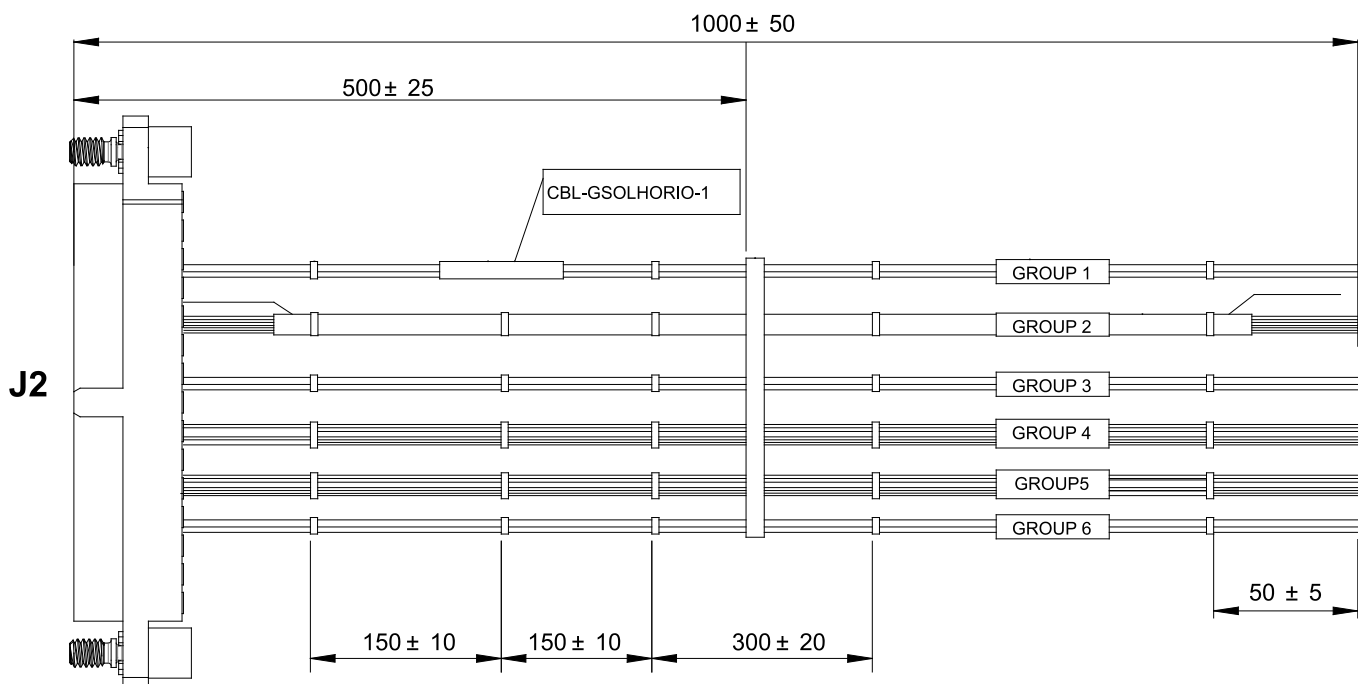
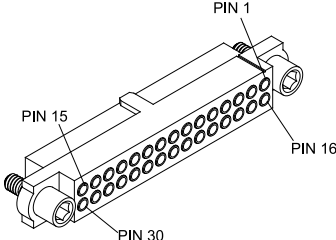


Figure 9: Auxiliary Power, Port A, C, STO, Analog, & I/O Cable J2



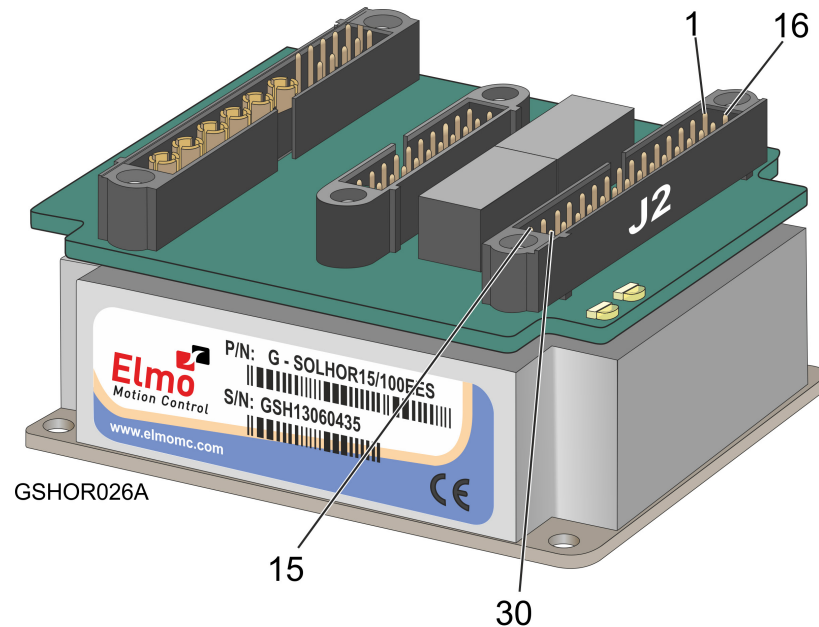
The general pinout of the CBL-GSOLHORIO-1 cable is as follows:

Pin No.	Signal	Color	Grouped Wires	Plug
1	VL	Red	Group 1	 30-Pin Female Plug
2	PR	Black		
3	COMRET	Yellow		
4	PORTA_ENC_A+	White	Group 2 Shielded through the shield sleeve via Pin 16	
5	PORTA_ENC_A-	Red		
6	PORTA_ENC_B+	Grey		
7	PORTA_ENC_B-	Green		
8	PORTA_ENC_INDEX+	Brown		
9	PORTA_ENC_INDEX-	Blue		
10	PORTC_ENCO_A-	White	Group 4	
11	PORTC_ENCO_A+	Red		
12	PORTC_ENCO_B-	Gray		
13	PORTC_ENCO_B+	Green		
14	PORTC_ENCO_INDEX-	Brown		
15	PORTC_ENCO_INDEX+	Blue		
16	COMRET + SHIELD SLEEVE	Yellow	Group 2	
17	ANALOG1-	White	Group 5	
18	ANALOG1+	Red		
19	ANLRET	Black		
20	INRET	Gray		
21	IN1	Brown		
22	IN2	Blue		
23	IN3	Green		
24	IN4 <i>or</i> STO1	White	Group 3	
25	IN5 <i>or</i> STO2	Green		
26	IN6 <i>or</i> STO_RET	Brown		



27	OUT2RET	White	Group 6	
28	OUT2	Red		
29	OUT1RET	Gray		
30	OUT1	Green		

Pin Positions



Note: The specific functionality of each pin is described fully in the *Gold Solo Hornet Installation Guide*.

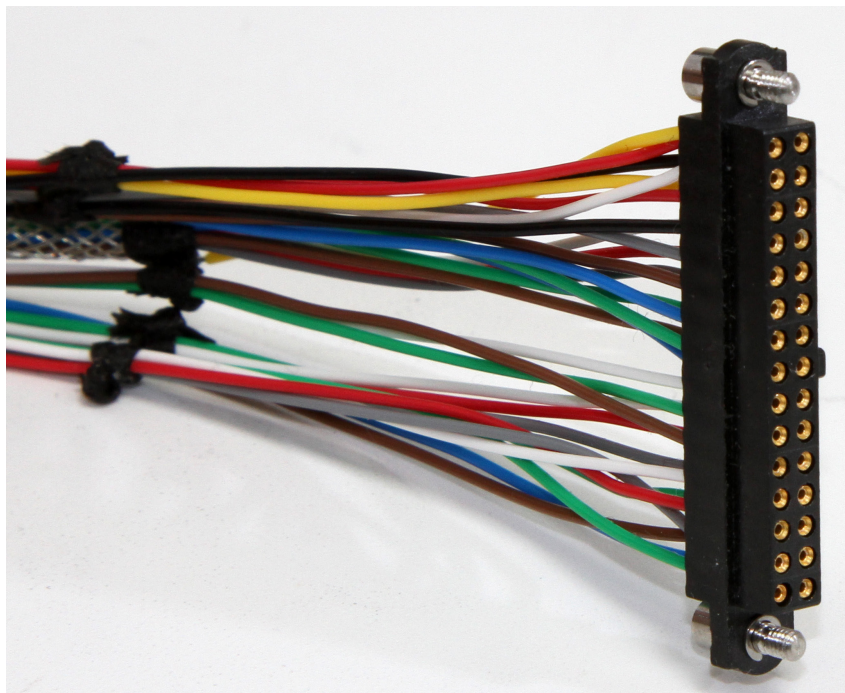


Figure 10: Aux. power, Port A, C, STO, ANALOG & I/O Cable (Part No. CBL-GSOLHORIO-1)



4.1. Mating Connector

The following table and drawings describes the component construction and required preparation of the female Auxiliary Power, Port A, C, STO, Analog, & I/O cable and connector.

Manufacturer Name	Manufacturer Part Number	Description
Harwin	M80-4813005	PLUG CM220 2X15 PINS 24-28G FEMALE
Nicomatic	222S30M16	



Cable Drawing

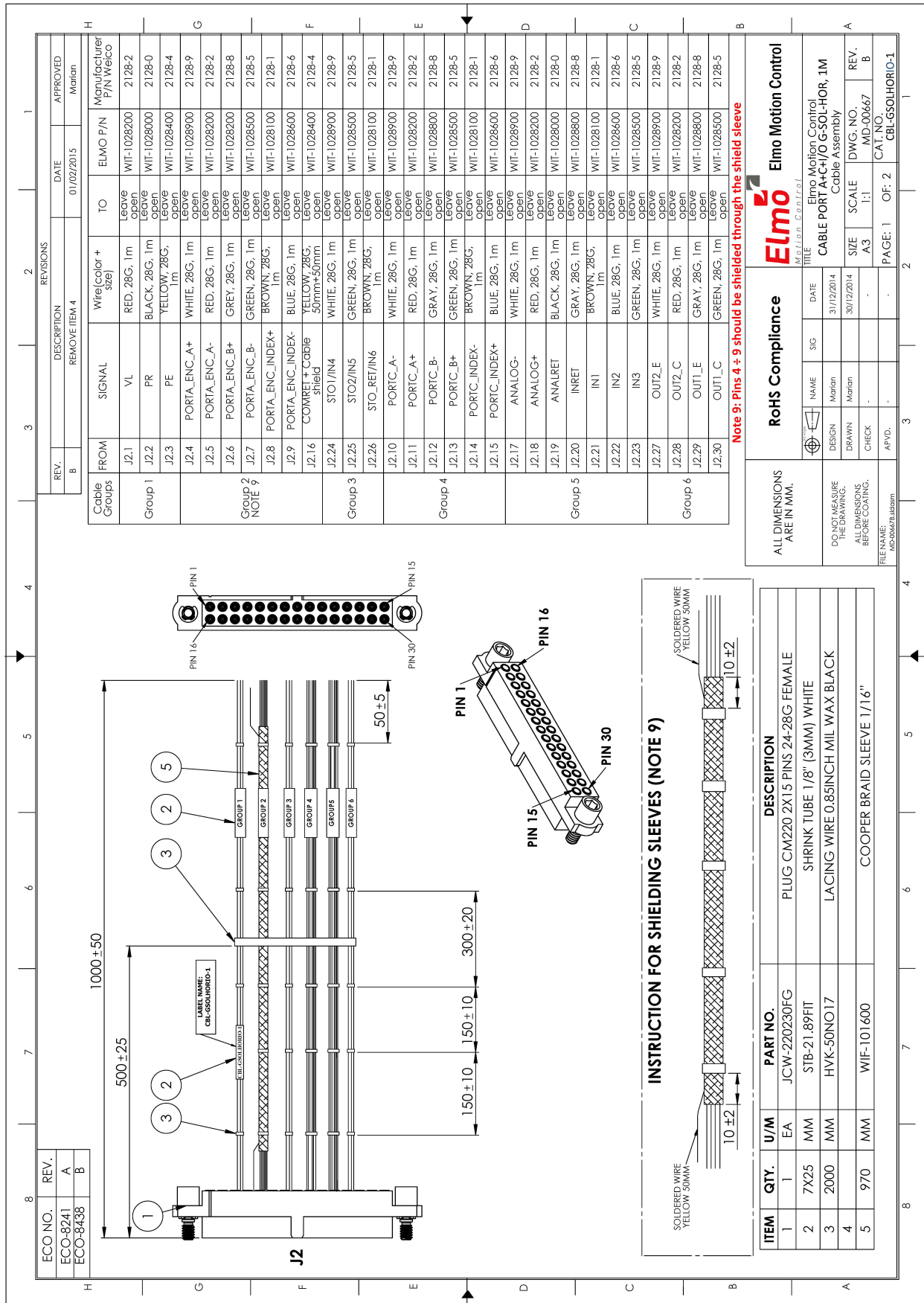


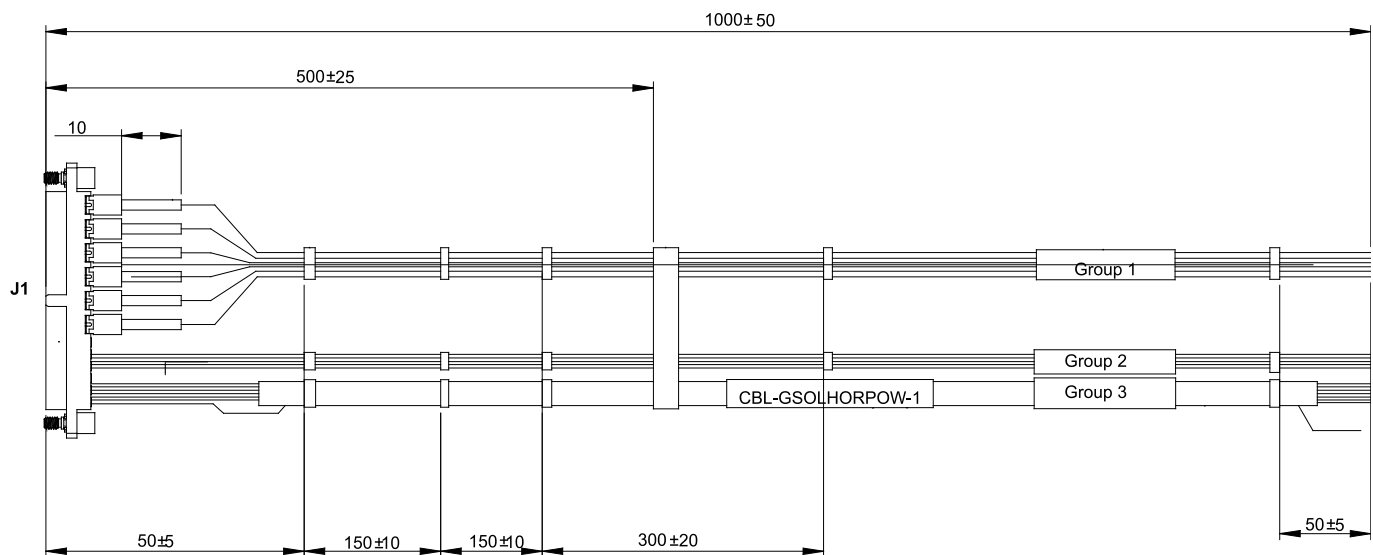
Figure 11: CBL-GSOLHORO-1 Drawing



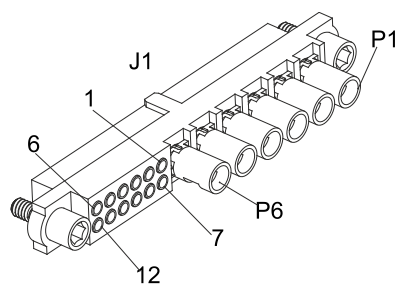
Chapter 5: Main Power & Port B Cable J1 (CBL-GSOLHORPOW-1)

The Main Power & Port B cable is a 6 x 18-AWG and 12 x 28-AWG shielded cable connected using a 6HP/12PINS 16, 18, 20AWG/24-28G female CM220 plug. The part number (P/N) of this cable is CBL-GSOLHORPOW-1. The Group 1 section of the cable is shrink-wrapped at the connector.

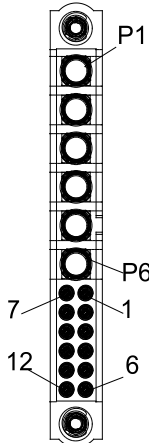
The cable is open on the motor side so that it can be connected to customer-specific connectors.



The general pinout of the Power cable is as follows:

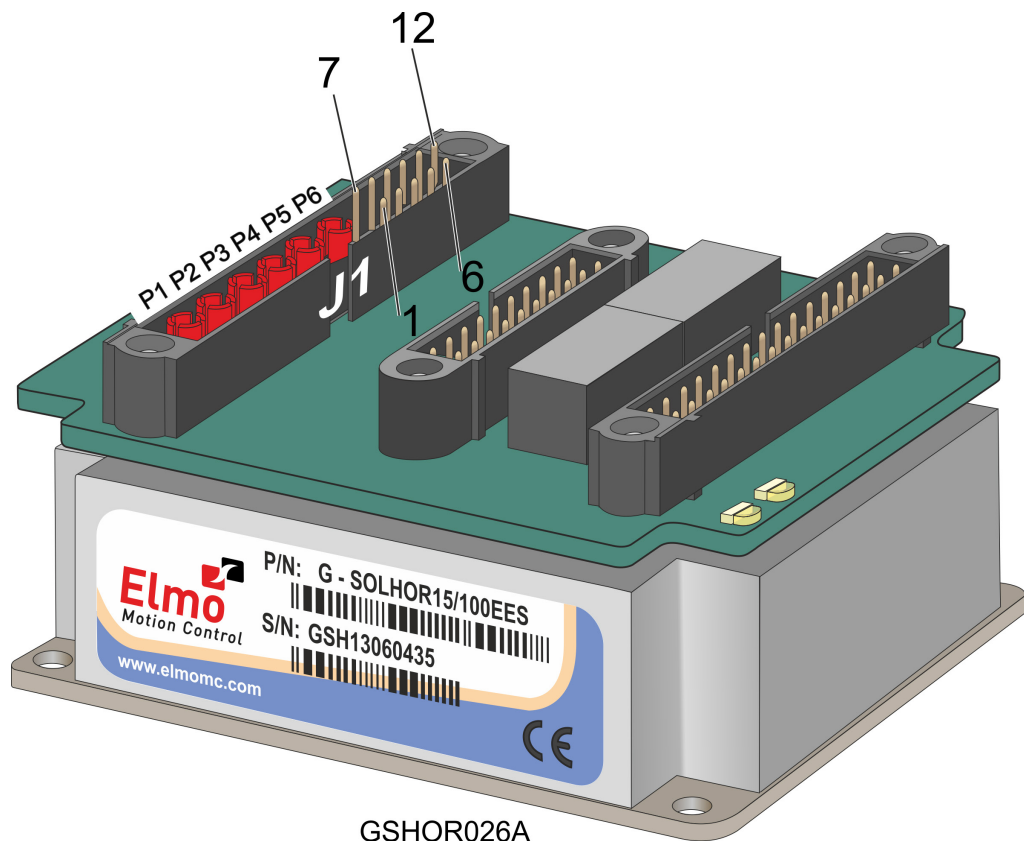
Pin No.	Signal	Color	Grouped Wires	Plug
P1	VP+	Red	Group 1 HP – High Powered Contacts	
P2	PR	Black		
P3	PE	Yellow		
P4	M1	White		
P5	M2	Green		
P6	M3	Brown		
1	+5V	Red	Group 2	
2	COMRET	Black		
3	PORTB_ENC_A+/SIN+	White	Group 3 Pins 3÷8 should be shielded through the	
4	PORTB_ENC_A-/SIN-	Red		
5	PORTB_ENC_B+/COS+	Grey		



6	PORTB_ENC_B-/COS-	Green	shield sleeve	
7	PORTB_ENC_INDEX+/ ANALOG_INDEX+	Brown		
8	PORTB_ENC_INDEX-/ ANALOG_INDEX-	Blue		
9	HA	White	Group 2	
10	HB	Green		
11	HC	Brown		
12	PE+ SHIELD SLEEVE (Port Shield)	Yellow	Group 3	

**6HP/12PINS female CM220
plug**

Pin Positions



Note: The specific functionality of each pin is described fully in the *Gold Solo Hornet Installation Guide*.



Figure 12: Power Cable (Part No. CBL-GSOLHORPOW-1)

5.1. Mating Connector

The following table and drawings describes the component construction and required preparation of the female Main Power & Port B cable and connector.

Manufacturer Name	Manufacturer Part Number	Description
Harwin	M80-4C11205F2-06-325-00-000	PLUG CM220 6HP/13-PINS 24-28G FEMALE
Nicomatic	222S12M16-0600-4320	



Cable Drawing

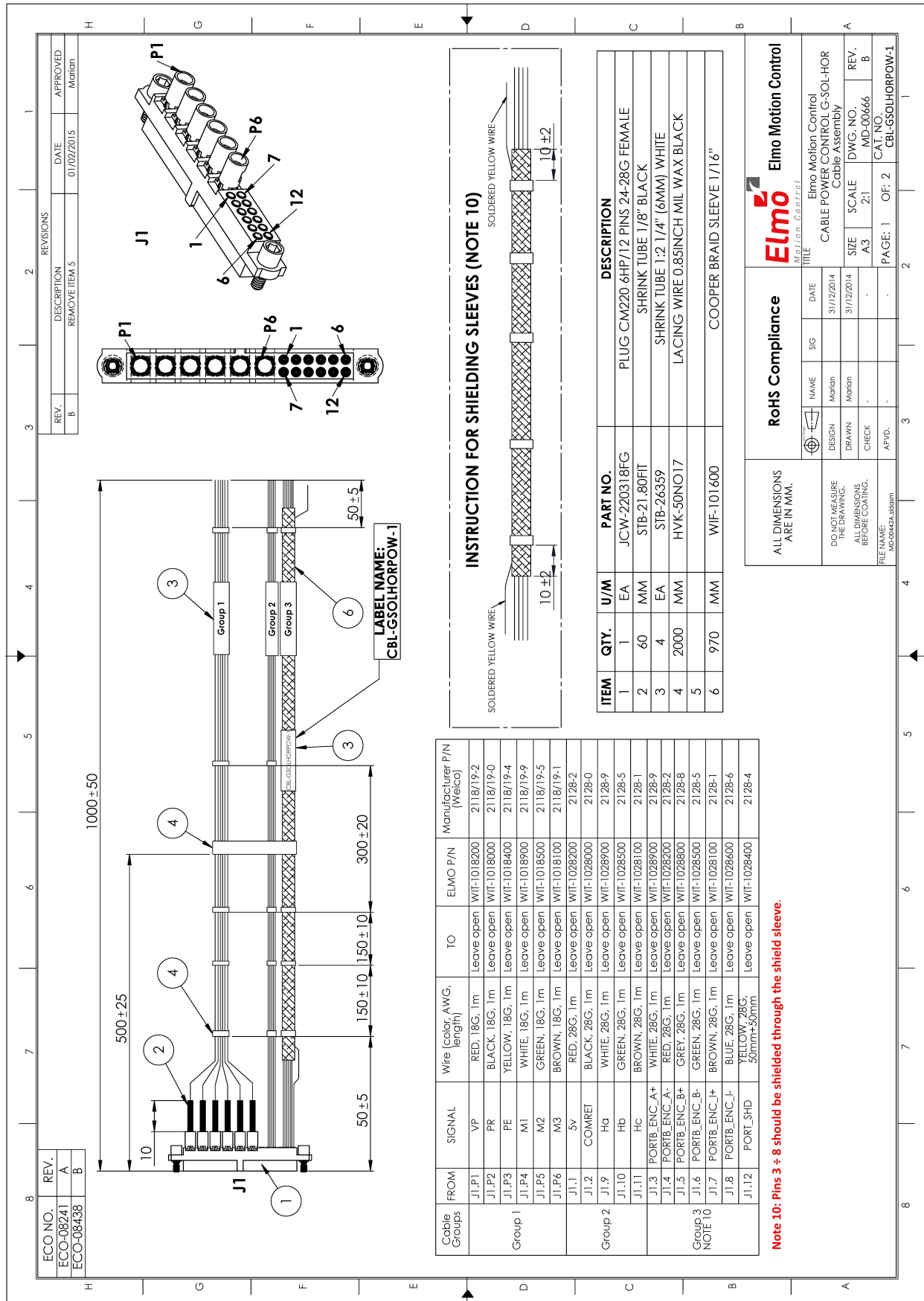


Figure 13: CBL-GSOLHORPOW-1 Drawing



Chapter 6: Mating Connector Kit (ACC-GSOLHORMATCON1)

item	Connector	Description
1	J3	PLUG CMM220 2X10PINS 24-28G FEMALE AND CONTACTS
2	J2	PLUG CM220 2X15PINS 24-28G FEMALE
3	J1	PLUG CM220 6HP/12PINS 24-28G FEMALE



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