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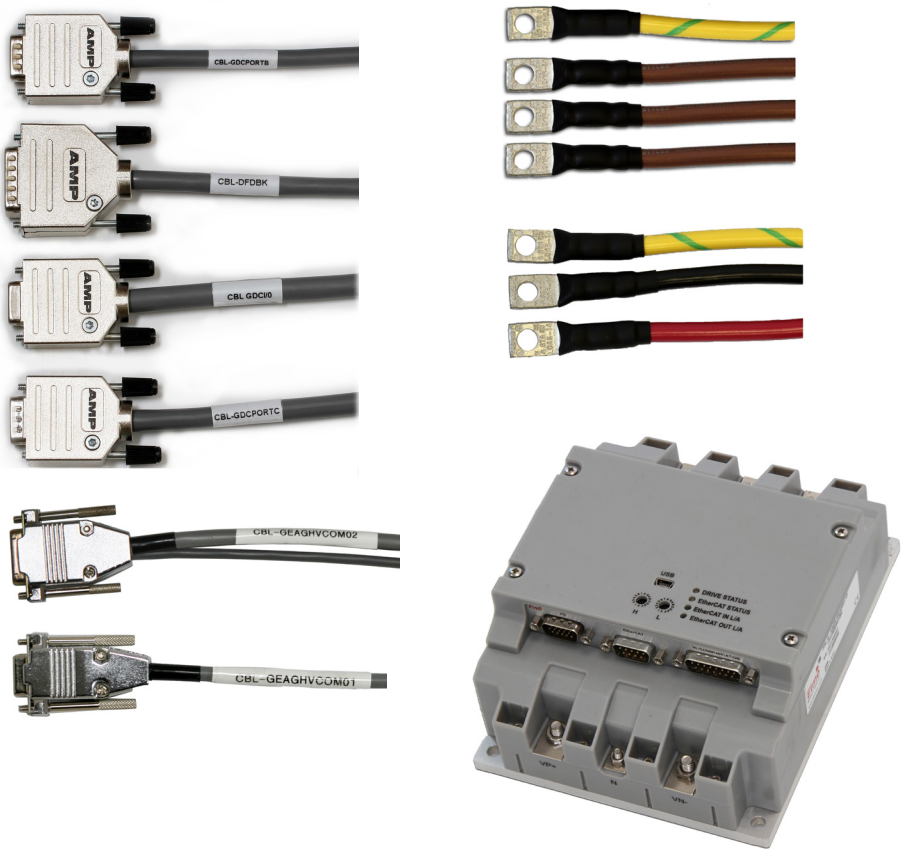
Since 1988

Gold Eagle HV

Gold Eagle HV Cable Kit (EtherCAT and CAN)



January 2014 (Ver. 1.000)

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

Catalog Number

CBL-GEAGHVKIT

Revision History

Version	Date	Details
Ver. 1.000	January 2014	Initial release

Chapter 1: Introduction

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

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

1.1. Cable Kit (CBL-GEAGHVKIT)

NOTE:

It should be noted that this kit does not include any CAT5E RJ-45 for EtherCAT/CAN and Mini-USB communication cables. Please purchase these cables separately. These items are standard cables that can be purchased locally.

Elmo's Gold Eagle HV Cable Kit consists of **two** cable kit sets:

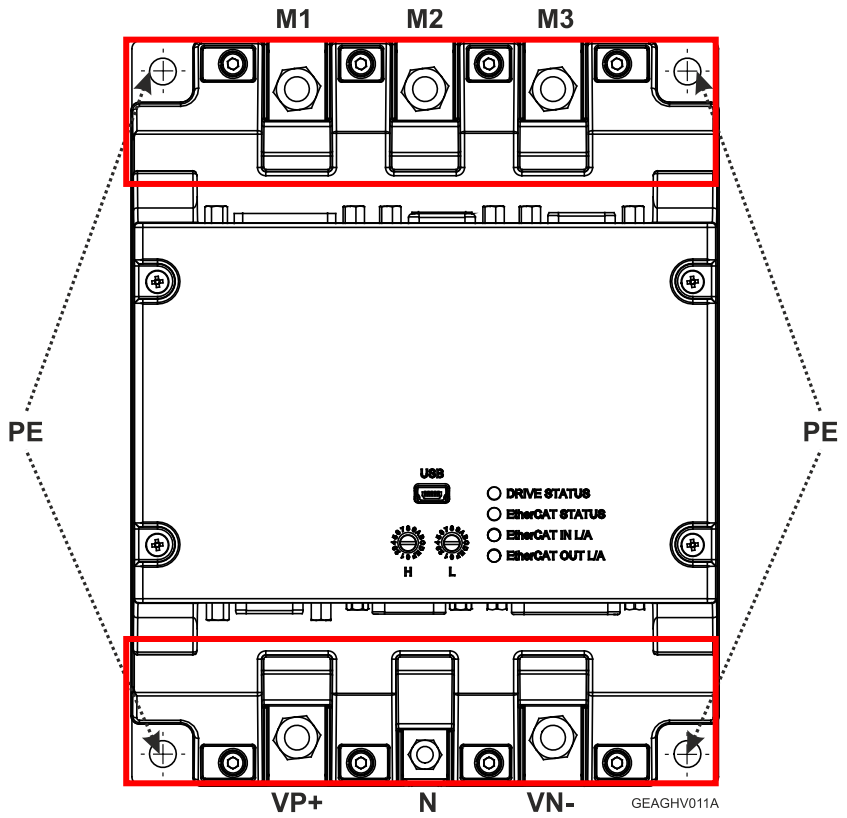
ELMO Part Number	Function
CBL-GEAGHVPOWKIT	Power cable kit for the Gold Eagle HV See Chapter 2: Gold Eagle HV Power Cable Kit for more details
CBL-GEAGHVCCKIT	Communication Control cable kit See Chapter 3: Gold Eagle HV Communication Control Kit for more details

Chapter 2: Gold Eagle HV Power Cable Kit

The CBL-GEAGHVPOWKIT power cable kit includes the following:

Pin	Function	Cables	
		Brushless Motor	**Brushed DC Motor**
M3	Motor phase 3	MOTOR PHASE, **brown**, 8 AWG	MOTOR PHASE, **brown**, 8 AWG
M2	Motor phase 2	MOTOR PHASE, **brown**, 8 AWG	MOTOR PHASE, **brown**, 8 AWG
M1	Motor phase 1	MOTOR PHASE, **brown**, 8 AWG	-
PE	Protective Earth	MOTOR PE, **yellow and green**, 8 AWG	MOTOR PE, **yellow and green**, 8 AWG
VP+	DC Positive Power input	Power In, **red**, 8 AWG	Power In, **red**, 8 AWG
VN-	DC Negative Power input	Power In, **black**, 8 AWG	Power In, **black**, 8 AWG
PE	Protective Earth	Ground, **yellow and green**, 8 AWG	Ground, **yellow and green**, 8 AWG
N	Not in use	Not in use	Not in use

Pin Positions



The cables are connected as follows:

Figure 1: Motor Power Cable Ends

The cables are connected as follows:

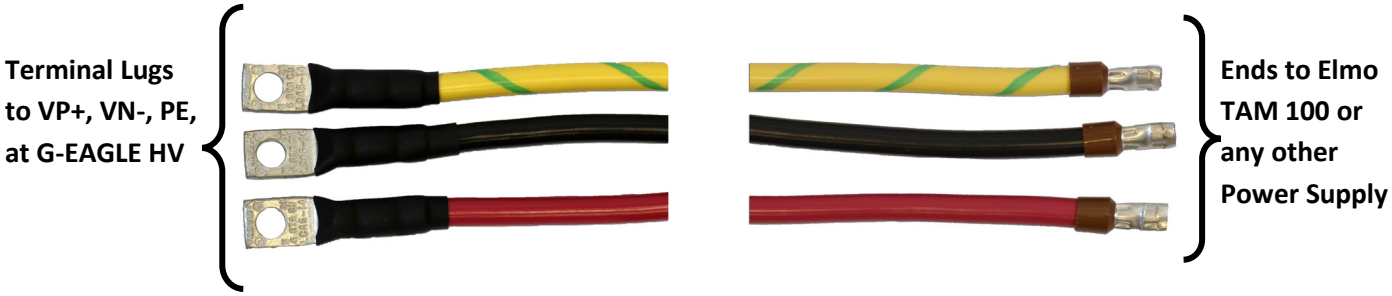


Figure 2: Main Power Cable Ends

Chapter 3: Gold Eagle HV Communication Control Kit

The CBL-GEAGHVCCKIT Communication and Control cable kit includes the following cables:

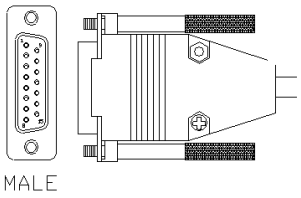
Function	Description
Port A cable	15-Pin D Type Male Connector
Port B cable	9-Pin D Type Male Connector
Port C cable	15-Pin High Density D Type Male Connector
I/O cable	15-Pin High Density D-Type Female Connector
EtherCAT/CAN Communication cable	9-Pin D Type Female Connector
VL/Communication cable	15-pin D-Type Female Connector

3.1. Port A Cable

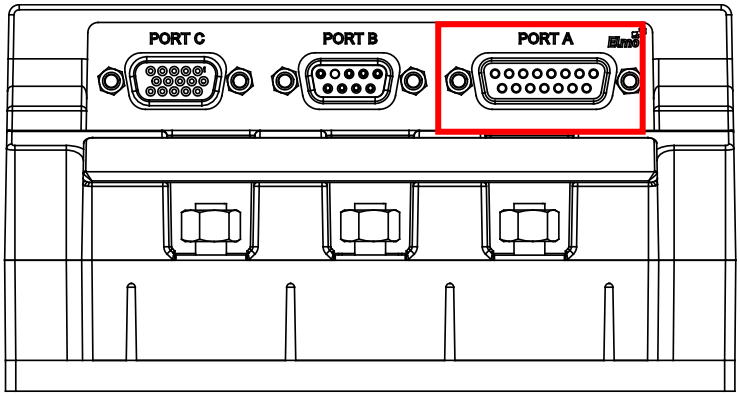
The Port A cable is a 6-pair 24-AWG shielded twisted-pair cable. It is connected using a D-type 15-pin male connector to the Gold Eagle HV Port A D-sub connector.

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

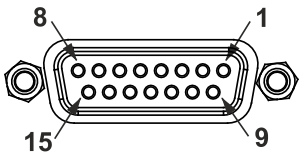
The general pinout of the Port A cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	HC	Green	Twisted Pair 1	 **15-Pin D Type Male Connector**
10	HB	Yellow		
3	COMRET	White	Twisted Pair 2	
4	+5V	Brown		
5	PortA_ENC_A-	Orange	Twisted Pair 3	
6	PortA_ENC_A+	Cyan		
7	PortA_ENC_INDEX-	Blue	Twisted Pair 4	
8	PortA_ENC_INDEX+	Red		
10	HA	Pink	Twisted Pair 5	
9	COMRET	Gray		
14	PortA_ENC_B-	Black	Twisted Pair 6	
15	PortA_ENC_B+	Purple		
11	COMRET	-	Drain Wire	

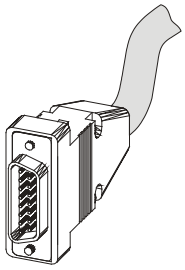
Pin Positions



G_EAGHVCC02



15-Pin D-Type Female Connector



15-Pin D-Type Male Connector

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

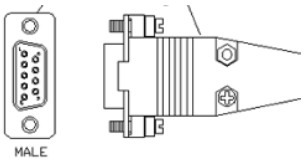
Figure 3: Feedback Port A Cable

3.2. Port B Cable

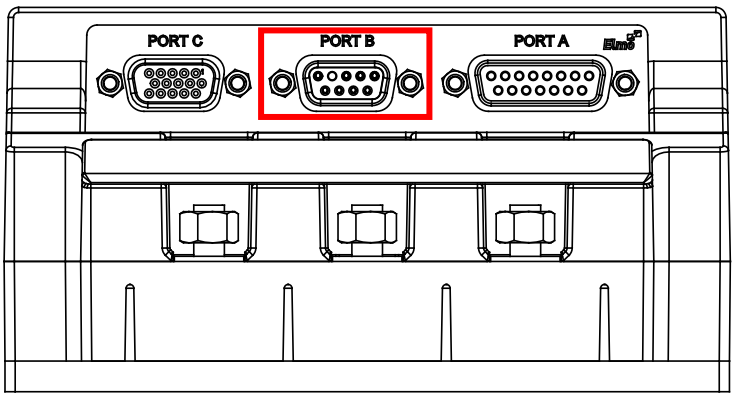
The Port B cable is a 4-pair 24-AWG shielded twisted-pair cable. It is connected using a D-type 9-pin male connector to the Gold Eagle HV Port B D-sub connector.

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

The general pinout of the Port B cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	PortB_ENC_A+/SIN+	Brown	Twisted Pair 1	 **9-Pin D Type Male Connector**
6	PortB_ENC_A-/SIN-	White		
3	PortB_ENC_INDEX+	Red	Twisted Pair 2	
8	PortB_ENC_INDEX-	Blue		
5	COMRET	Gray	Twisted Pair 3	
4	+5V	Pink		
7	PortB_ENC_B-	Green	Twisted Pair 4	
2	PortB_ENC_B+	Yellow		
9	COMRET	-	Drain Wire	

Pin Positions



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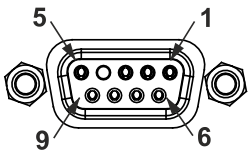
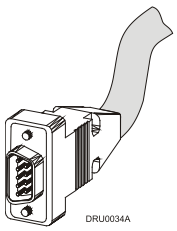


9-Pin D-Type Female Connector



9-Pin D-Type Male Connector

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

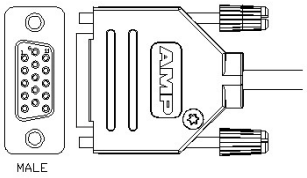
Figure 4: Feedback Port B Cable

3.3. Port C Cable

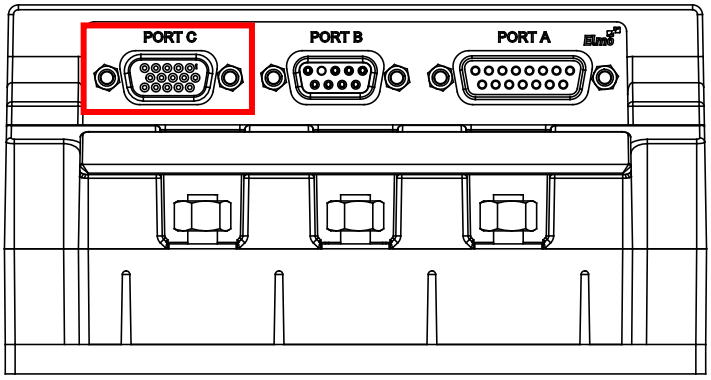
The Port C cable is an 8-pair 24-AWG shielded twisted-pair cable. It is connected using a D-type 15-pin high density male connector to the Gold Eagle HV Port C D-sub connector.

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

The general pinout of the Port C cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	PortC_ENCO_A+	Cyan	Twisted Pair 1	 **15-Pin High Density D Type Male Connector**
2	PortC_ENCO _A-	Orange		
3	PortC_ENCO _B+	Purple	Twisted Pair 2	
4	PortC_ENCO _B-	Black		
5	PortC_ENCO _ Index+	Red	Twisted Pair 3	
10	PortC_ENCO _ Index-	Blue		
7	STO_RET	Gray	Twisted Pair 4	
6	STO1	Pink		
11	STO2	White/Yellow	Twisted Pair 5	
12	STO_RET	White/Green		
9	COMRET	Green	Twisted Pair 6	
13	ANARET	Yellow		
15	ANALOG1+	White/Red	Twisted Pair 7	
14	ANALOG1-	White/Black		
8	Reserved	Brown	Twisted Pair 8	
-	N/C	White		
*	PE	-	Drain Wire	
*** - Connector 15 Pin Male Frame**				

Pin Positions



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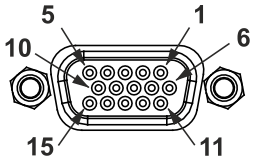
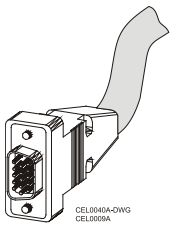


15-Pin High Density D-Type Female Connector



15-Pin High Density D-Type Male Connector

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

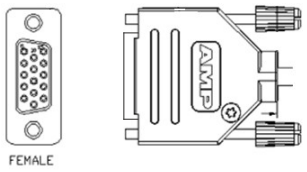
Figure 5: Port C Cable

3.4. I/O Cable

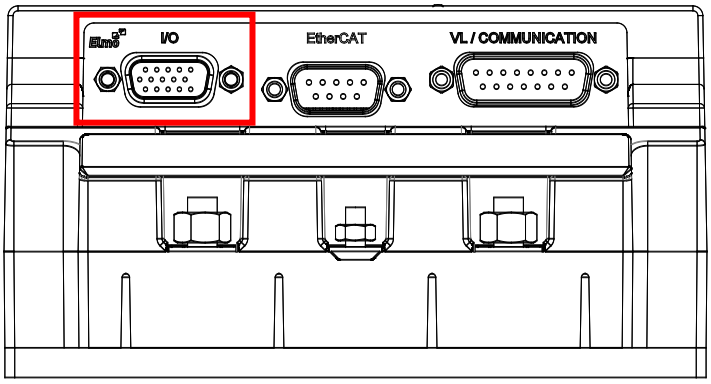
The I/O cable is an 8-pair 24-AWG double shielded twisted-pair cable. It is connected using a D-type 15-pin female connector to the Gold Eagle HV on the servo drive side.

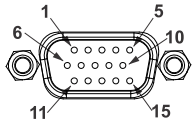
The cable is open on the end side so that it can be connected to the controller interface connector.

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

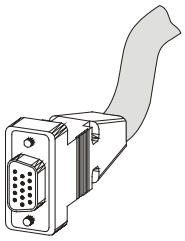
Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	IN1	Orange	Twisted Pair 1	 **15-Pin High Density D-Type Female Connector**
2	IN2	Cyan		
3	OUT1	Blue	Twisted Pair 2	
4	OUT2	Red		
5	OUT3	Yellow	Twisted Pair 3	
13	OUT4	Green		
7	IN3	Purple	Twisted Pair 4	
8	IN4	Black		
9	VDDRET	White	Twisted Pair 5	
10	VDD	Brown		
11	IN5	Gray	Twisted Pair 6	
12	IN6	Pink		
14	VDDRET	White/Black	Twisted Pair 7	
15	VDD	White/Red		
6	INRET1-6	White/Yellow		
*	PE	-	Drain Wire	
*** - Connector 15 Pin High Density Frame**				

Pin Positions





15-Pin High Density D-Type Male Connector



15-Pin High Density D-Type Female Connector

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

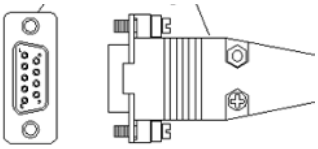
Figure 4: I/O Cable

3.5. EtherCAT or CAN Communication Cable

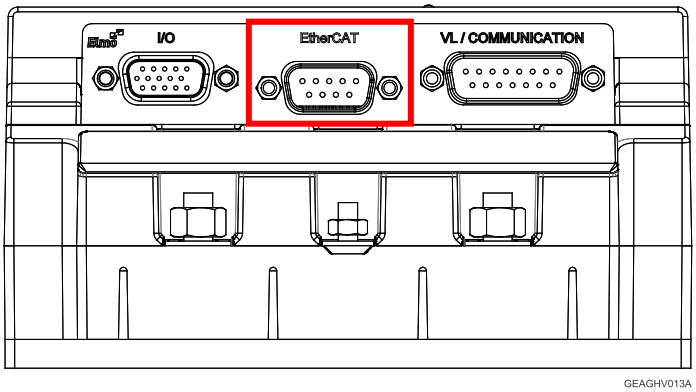
The EtherCAT/CAN communication cable is a 4-pair 28 AWG double-shielded twisted-pair cable. It is connected using a 9-pin D-type female connector to the Gold Eagle HV at the EtherCAT or CAN connector.

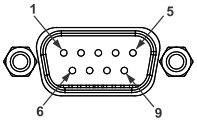
The cable is open on the user side so that it can be connected to the user communication connector.

The general pinout of the EtherCAT communication cable is as follows:

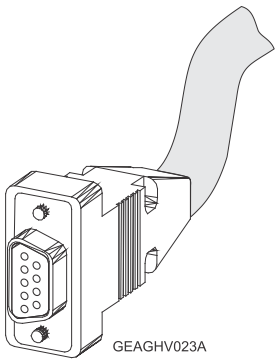
Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	EtherCAT_IN_TX+/ Ethernet_TX+	Brown	Twisted Pair 1	 9-Pin D Type Female Connector
6	EtherCAT_IN_TX-/ Ethernet_TX-	White		
2	EtherCAT_IN_RX+/ Ethernet_RX+	Red	Twisted Pair 2	
7	EtherCAT_IN_RX-/ Ethernet_RX-	Blue		
3	EtherCAT_OUT_TX+	Gray	Twisted Pair 3	
8	EtherCAT_OUT_TX-	Pink		
4	EtherCAT_OUT_RX+	Green	Twisted Pair 4	
9	EtherCAT_OUT_RX-	Yellow		
5	Shield	-	Drain Wire	

Pin Positions



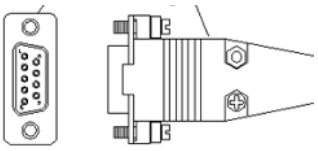


9-Pin D-Type Male Connector

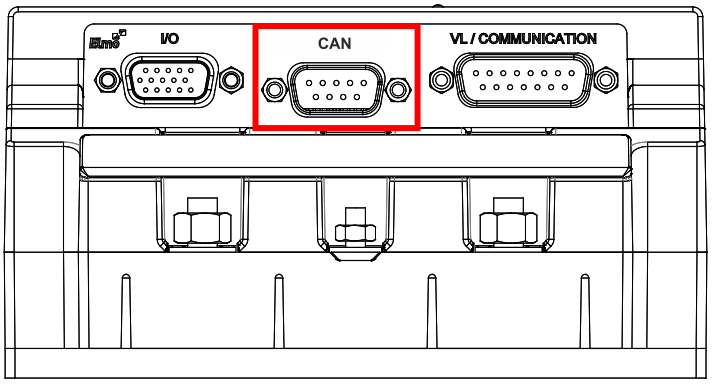


9-Pin D-Type Female Connector

The general pinout of the CAN communication cable is as follows:

Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	CAN_IN_H	Brown	Twisted Pair 1	 9-Pin D Type Female Connector
6	CAN_IN_L	White		
2	N/C	Red	Twisted Pair 2	
7	CAN_GND	Blue		
3	CAN_OUT_H	Gray	Twisted Pair 3	
8	CAN_OUT_L	Pink		
4	N/C	Green	Twisted Pair 4	
9	CAN_GND	Yellow		
5	Shield	-	Drain Wire	

Pin Positions



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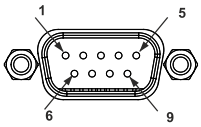
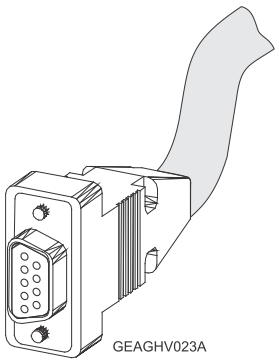


9-Pin D-Type Male Connector



9-Pin D-Type Female Connector

Notes: The specific functionality of each pin is described fully in the *Gold Eagle HV Installation Guide*.

The CAN terminator is used only for CAN applications. It is used to terminate the CAN communication line.

The CAN terminations prevent the CAN signal reflection at the end of the physical lines.

The reflection suppresses the CAN signal which may lead to Error Frames and causes the CAN controller message to be discarded. **120 Ohm resistors** are required on both physical ends of the CAN network to prevent the signal reflection.

Figure 4: EtherCAT/CAN Communication Cable

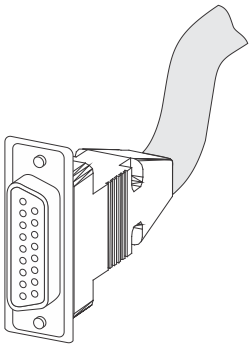
3.6. VL/Communication Cable

The VL communication cable consists of two different cables. One cable is a 4-pair 28 AWG double-shielded twisted-pair cable. The other cable is a single-pair 24-AWG double shielded twisted-pair cable. It is connected using a 15-pin D-type female connector to the Gold Eagle HV VL/communication connector.

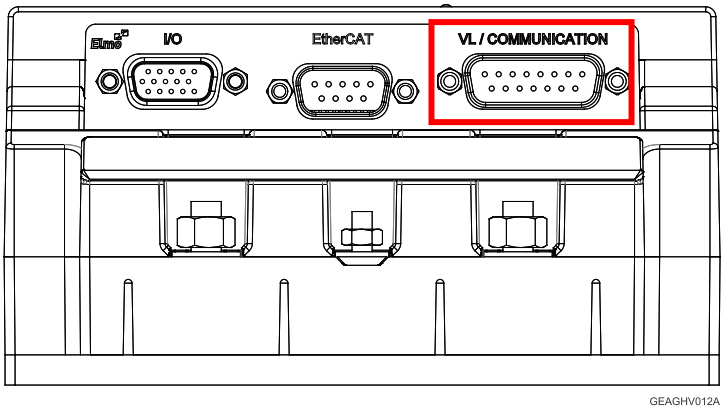
The cable is open on the user side so that it can be connected to the user interface connector.

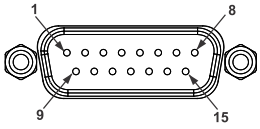
The general pinout of the VL communication cable is as follows:

Note: The USB connection can be either from the top mini USB connector or from the VL/Communication D-Type connector. Only one connector can be connected each time. The USB connectors cannot be connected simultaneously.

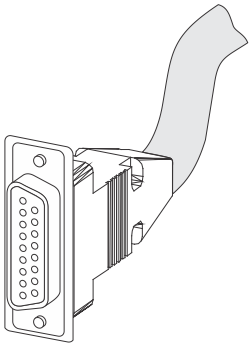
Pin No.	Signal	Color	Twisted & Shielded Wire	Plug
1	USB D-	Brown	Twisted Pair 1	 GEAGHV022A **15-pin D-Type Female Connector**
9	USB D+	White		
2	USB_VBUS	Red	Twisted Pair 2	
10	USB COMRET	Blue		
4	RS-232_RX/RS-422_RX+	Gray	Twisted Pair 3	
12	RS-232_TX/RS-422_RX-	Pink		
5	RS-422_TX-	Green	Twisted Pair 4	
13	RS-422_TX+	Yellow		
11	RS COMRET	Black	Twisted Pair 5	
15	Not in use		-	
7	Not in use		-	
3	Shield	-	Drain Wire	
S, T, or H option type(optional backup supply)				
14	VL+, +24 V Auxiliary Supply Input **Positive**	Cable 2 Red	Twisted Pair 1	
6	VL-, 24 V Auxiliary Supply Input **Return**	Cable 2 Black		
8	Shield	-	Drain Wire	

Pin Positions





15-Pin D-Type Male Connector



GEAGHV022A

15-pin D-Type Female Connector

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

Figure 4: VL Communication Cable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