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Gold Drum (DTYPE Connections)

Gold Drum Cable Kit



August 2015 (Ver. 1.001)

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Elmo Motion Control

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Catalog Numbers

Gold Drum DTYPE ECAT Cable kit	CBL-GDRUMDKIT01
Gold Drum DTYPE CAN Cable kit	CBL-GDRUMDKIT02

Revision History

Version	Date	Details
Ver. 1.000	August 2014	Initial release
Ver. 1.001	May 2015	Updated new cable parts

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Chapter 1: Introduction

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

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

1.1. Cable Kit

There are two catalog numbers of the Gold Drum (DTYPE) cable kit:

Gold Drum DTYPE ECAT Cable kit	CBL-GDRUMDKIT01
Gold Drum DTYPE CAN Cable kit	CBL-GDRUMDKIT02

Make sure to order the appropriate kit applicable to your Gold Drum servo drive.

The EtherCAT cable kit (CBL-GDRUMDKIT01) includes the following cables:

ELMO Part Number	Function	EtherCAT/CAN Applicable
CBL-GDRUDECAT	EtherCAT and USB	EtherCAT
CBL-GDRUDIO	I/O & VL	Common
CBL-GDCPORTC	Port C	Common
CBL-GDRUDPORTS	Port A and B	Common
CBL-GEAGHVPOWKIT	Motor and Power	Common

The CAN cable kit (CBL-GDRUMDKIT02) includes the following cables:

ELMO Part Number	Function	EtherCAT/CAN Applicable
CBL-GDRUDCAN	CAN and USB	CAN
CBL-GDRUDIO	I/O & VL	Common
CBL-GDCPORTC	Port C	Common
CBL-GDRUDPORTS	Port A and B	Common
CBL-GEAGHVPOWKIT	Motor and Power	Common

NOTE:

An appropriate CAN Terminator must be inserted when the servo drive is located at the end point of the customer network. For details of the operation of the CAN Terminator please refer to Chapter 6:

Chapter 2: Feedback Port A and B Cable (CBL-GDRUDPORTS)

The male feedback port A & B cable consists of two cables joined; a six twisted-pair double shielded 24-AWG shielded cable, and a four twisted-pair double shielded 24-AWG shielded cable . The resultant is a feedback cable with a single 26-pin male D-Type connector to connect to the Gold Drum (DTYPE) on the servo drive side. The part number (P/N) of this cable is CBL-GDRUDPORTS.

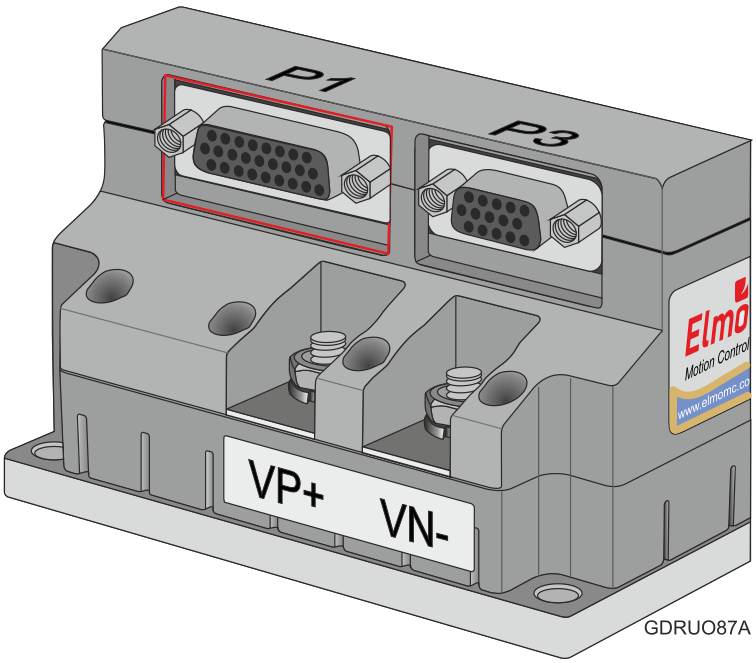
This cable is open on the motor side so that it can be connected to the motor-feedback connector.

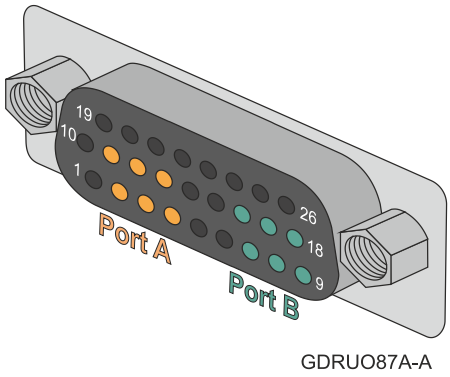
The general pinout of the feedback port A & B cable is as follows:

Pin No.	Port A Signal	Color	Twisted & Shielded Wire 2 X 6 Plug
21	HC	Green	
20	HB	Yellow	
5	COMRET	White	
1	+5V	Brown	
2	PortA_ENC_A-	Orange	Pair
11	PortA_ENC_A+	Cyan	
4	PortA_ENC_INDEX-	Blue	Pair
13	PortA_ENC_INDEX+	Red	
19	HA	Pink	Pair
24	Reserved	Gray	
3	PortA_ENC_B-	Black	Pair
12	PortA_ENC_B+	Purple	
-	PE	-	Drain Wire to connector frame

Pin No.	Port B Signal	Color	Twisted & Shielded Wire 2 X 4 Plug
16	PORTB_A+/SIN+	Brown	Pair
7	PORTB_A-/SIN-	White	
18	PORTB_INDEX+	Red	Pair
9	PORTB_INDEX-	Blue	
14	COMRET	Gray	
10	+5V	Pink	
8	PORTB_B-/COS-	Green	Pair
17	PORTB_B+/COS+	Yellow	
-	PE	-	Drain Wire to connector frame

P1 Pin Position

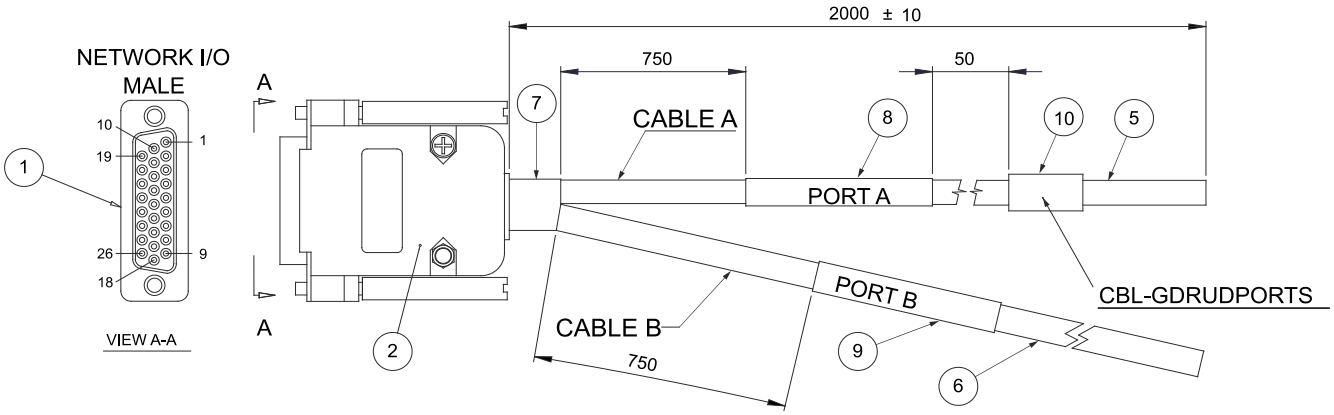




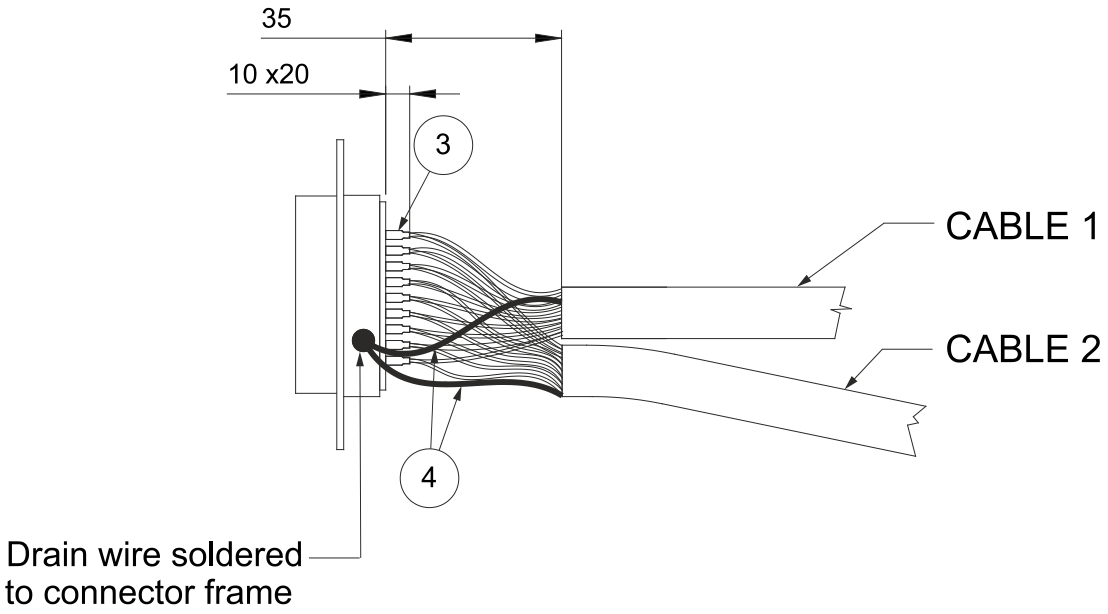
26-Pin D-Type High Density Female Connector
(Elmo P.N. JCB-111026FG)

Note: The specific functionality of each pin is described fully in the *Gold Drum (DTYPE) Installation Guide*.

Pin Positions



26-Pin D-Type Male Connector and Cable



Required Earthing for the 26-pinonnector

Figure 1: 26-Pin D-Type Male Connector and Cable

Note: When earthing the two cable wires, shrink the wire after soldering to the connector legs with item 3 to a length of 10 mm.

Chapter 3: Port C Cable (CBL-GDCPORTC)

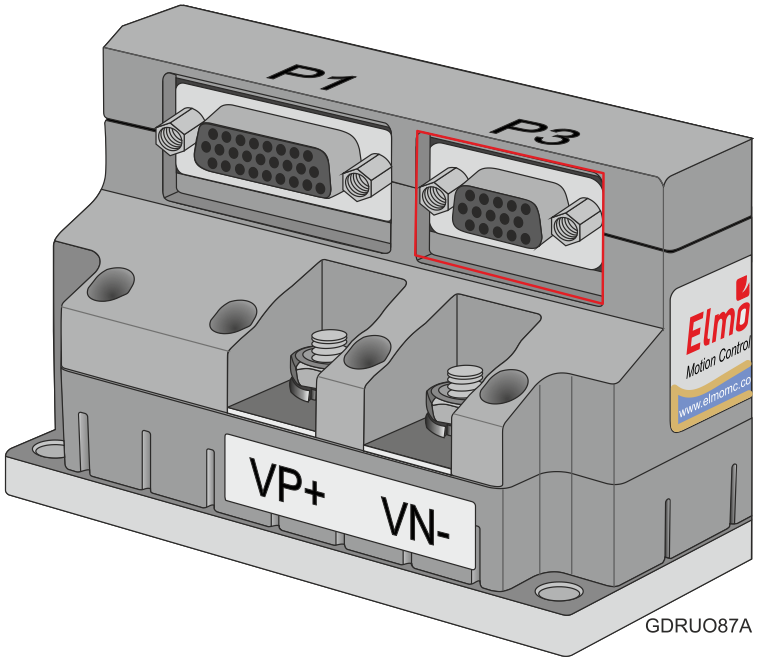
The Port C cable is an eight- twisted-pair 24-AWG shielded cable. It is connected using 15-pin male high density D-type connector to connect to the Gold Drum (DTYPE) on the servo drive side. The part number (P/N) of this cable is CBL-GDCPORTC.

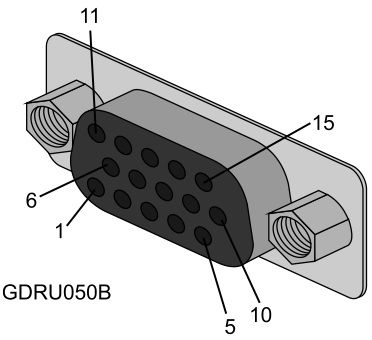
The cable is open on the motor side so that it can be connected to the controller interface connector.

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

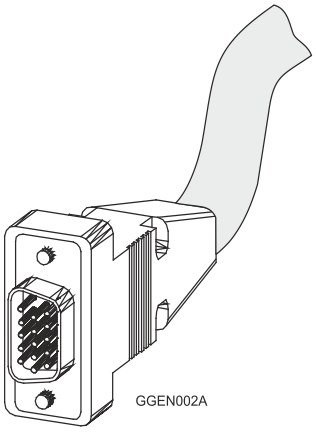
Pin No.	Signal	Color	Twisted & Shielded Wire
1	PortC_ENCO_A+	Cyan	Twisted Pair 1
2	PortC_ENCO_A-	Orange	
3	PortC_ENCO_B+	Purple	Twisted Pair 2
4	PortC_ENCO_B-	Black	
5	PortC_ENCO_Index+	Red	Twisted Pair 3
10	PortC_ENCO_Index-	Blue	
7	STO_RET	Gray	Twisted Pair 4
6	STO1	Pink	
11	STO2	White/Yellow	Twisted 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
-	Not connected	White	
	PE	-	Drain Wire to connector frame

Pin Positions





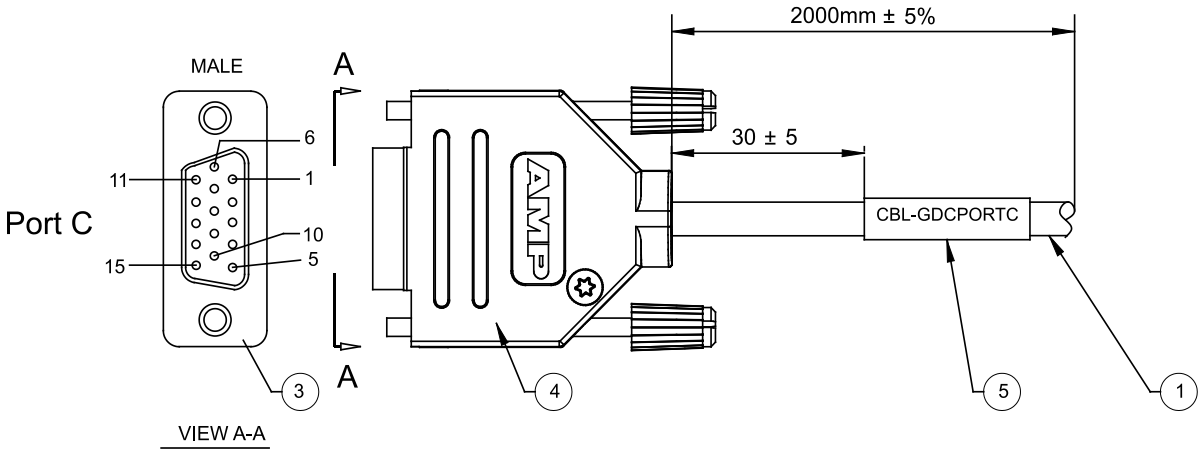
15-Pin D-Type High Density Female Connector (Elmo P.N. JCB-116315FC)



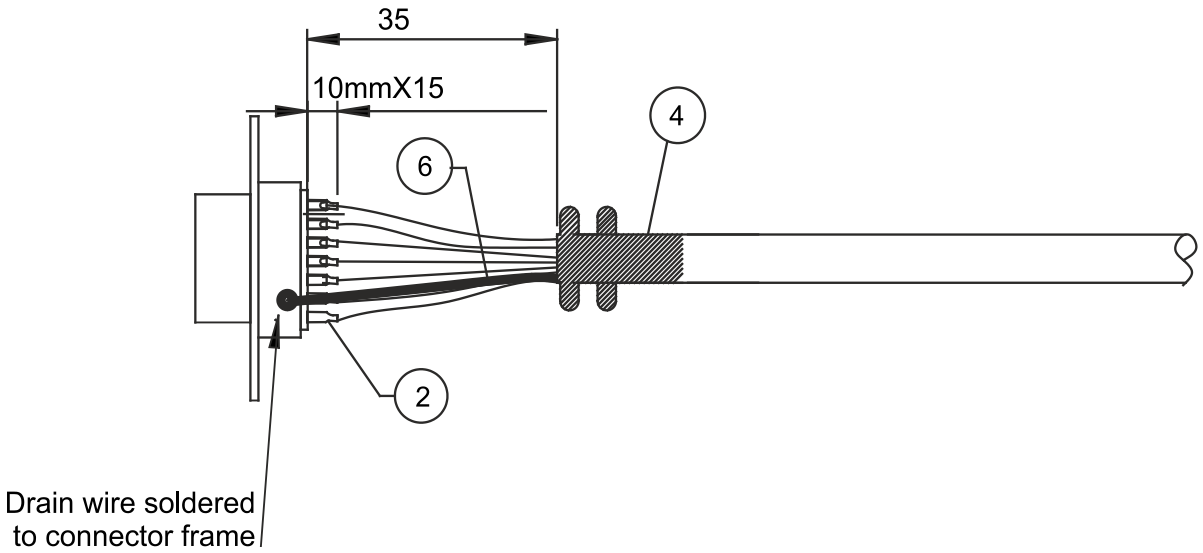
15-Pin High Density D-Type Male Connector

Note: The specific functionality of each pin is described fully in the *Gold Drum (DTYPE) Installation Guide*.

Pin Positions



154-Pin D-Type Male Connector and Cable



Required Earthing for the 15-pinonnector



Figure 2: Port C Cable (Part No. CBL-GDCPORTC)

Chapter 4: I/O and VL Cable (CBL-GDRUDIO)

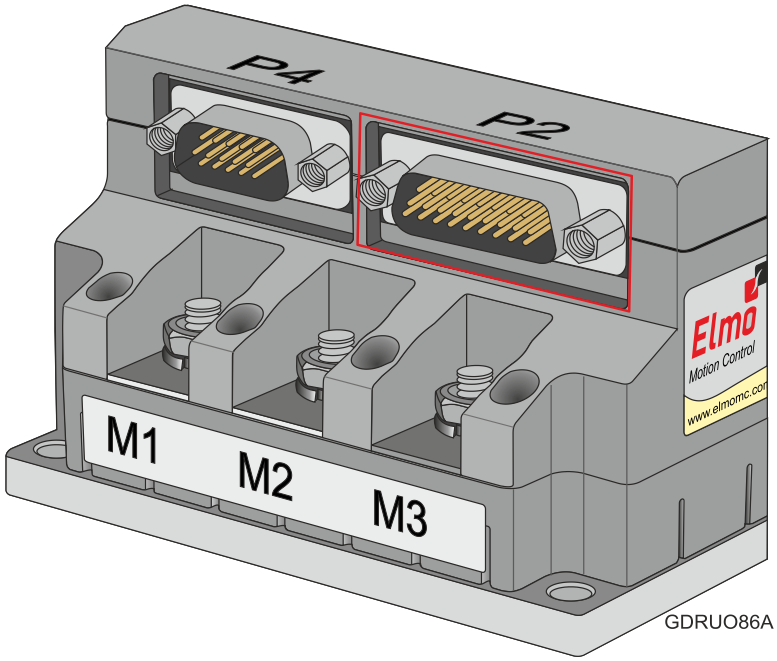
The I/O cable is an eight twisted-pair 26-AWG double shielded cable. It is connected using a 26-pin female high density D-type connector. The part number (P/N) of this cable is CBL-GDRUDIO.

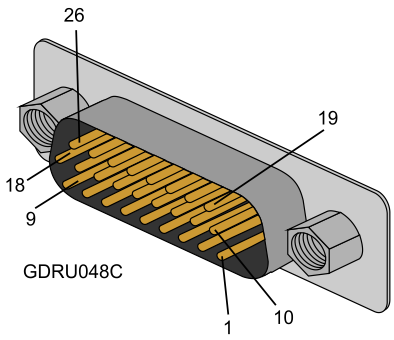
The cable is open on the motor side so that it can be connected to the controller interface connector.

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

Pin No.	Signal	Color	Twisted & Shielded Wire
20	IN1_HS	Orange	Pair
21	IN2_HS	Cyan	
2	OUT1	Blue	Pair
3	OUT2	Red	
4	OUT3	Yellow	Pair
5	OUT4/STO_OUT_E	Green	
22	IN3_HS	Purple	Pair
23	IN4_HS	Black	
6	VDDRET	White	Pair
1	VDD	Brown	
24	IN5_HS	Gray	Pair
25	IN6_HS	Pink	
15	VDDRET	White/Black	Pair
10	VDD	White/Red	
19	INRET1-6	White/Yellow	Pair
14	STO_OUT_C	White/Green	
PE	Drain Wire		Drain Wire to connector frame
7	VL+	Red	Cable 2
18	VL-	Black	

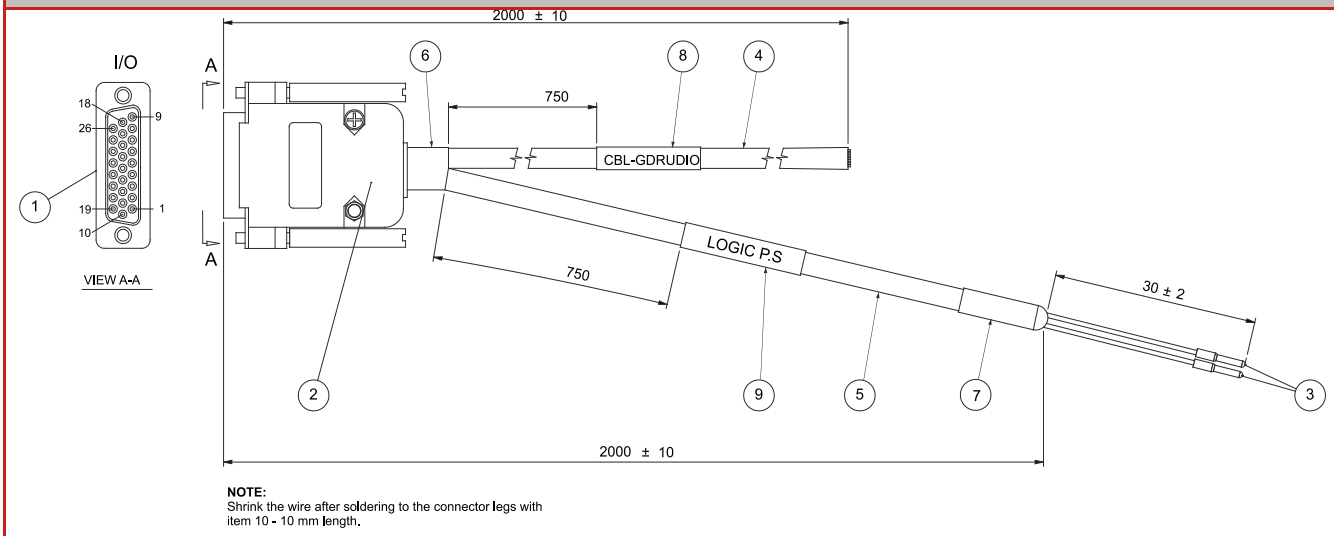
Pin Positions



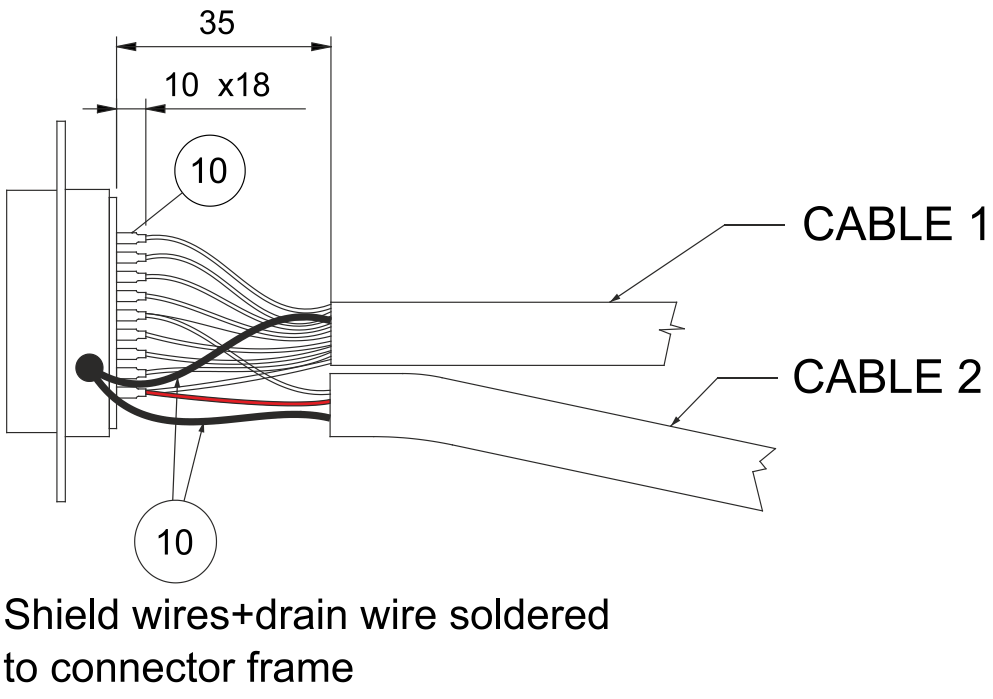


26-Pin D-Type Male Connector
(Elmo P.N. JCB-205026M0)

Pin Positions



26-Pin D-Type Female Connector and Cable



Required Earthing for the 26-pin connector

Figure 3: I/O & VL Cable (Part No. CBL-GDRUDIO)

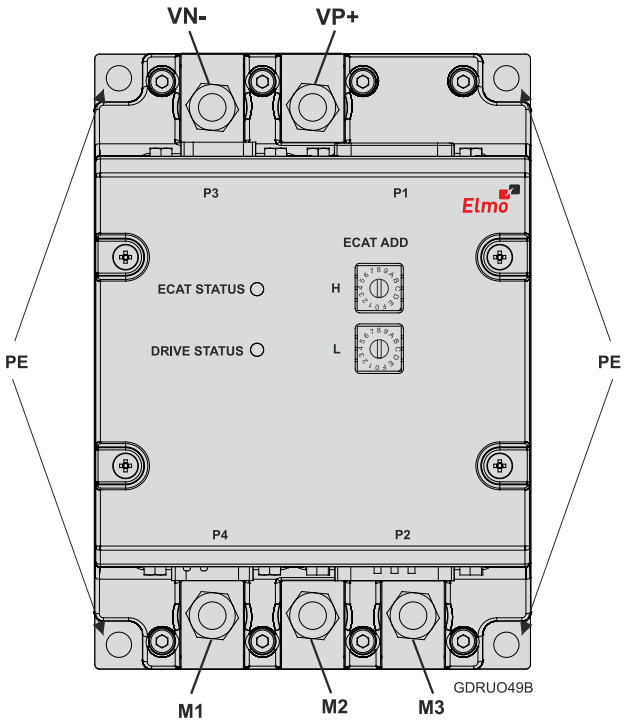
Note: The specific functionality of each pin is described fully in the *Gold Drum (DTYPE) Installation Guide*.

Chapter 5: Gold Drum (DTYPE Connections) Power Cable Kit (CBL-GEAGHVPOWKIT)

The DRU-HVPOWKIT power cable kit includes the following cables:

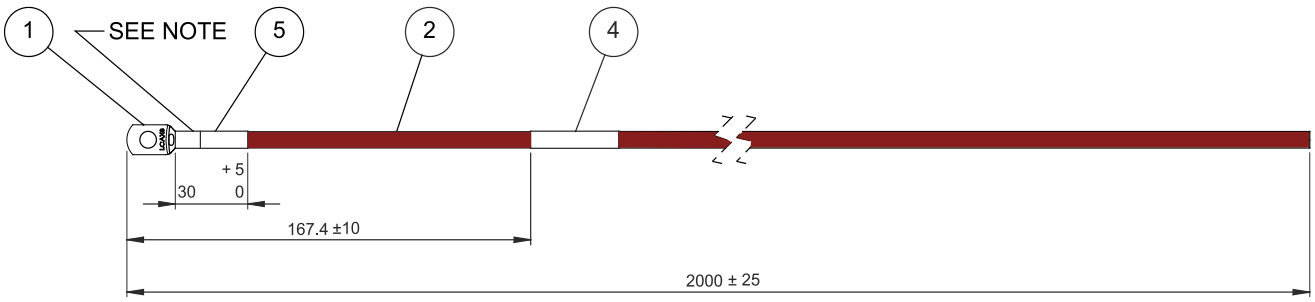
Pin	Function	Cables	
		Brushless Motor	**Brushed DC Motor**
M3	Motor phase 3	MOTOR PHASE, **Brown**, 8 AWG	MOTOR PHASE, **Brown**, 8 AWG
M2	Motor phase 2	MOTOR PHASE, **Brown**, 8 AWG	MOTOR PHASE, **Brown**, 8 AWG
M1	Motor phase 1	MOTOR PHASE, **Brown**, 8 AWG	N/C
PE	Protective Earth	MOTOR PE, **Yellow and Green**, 8 AWG	MOTOR PE,**Yellow and Green**, 8 AWG
VP+	DC Positive Power input	Power Out, **Red**, 8 AWG	Power Out, **Red**, 8 AWG
VN-	DC Negative Power input	Power Out, **Black**, 8 AWG	Power Out, **Black**, 8 AWG
PE	Protective Earth	Ground In, **Yellow and Green**, 8 AWG	Ground In, **Yellow and Green**, 8 AWG

Pin Positions



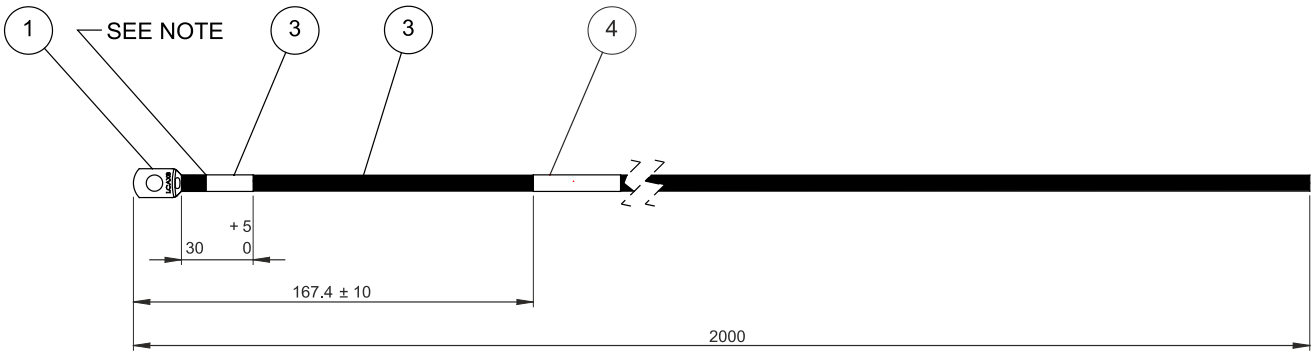
Pin Positions

NOTE:CRIMP THE TERMINAL WITH PANDUIT CRIMPING TOOL BEFORE SHRINKING THE HEAT SHRINK TUBE.



Barrel Lug end TAM Red Connection Cable

NOTE: CRIMP THE TERMINAL WITH PANDUIT CRIMPING TOOL BEFORE SHRINKING THE HEAT SHRINK TUBE.

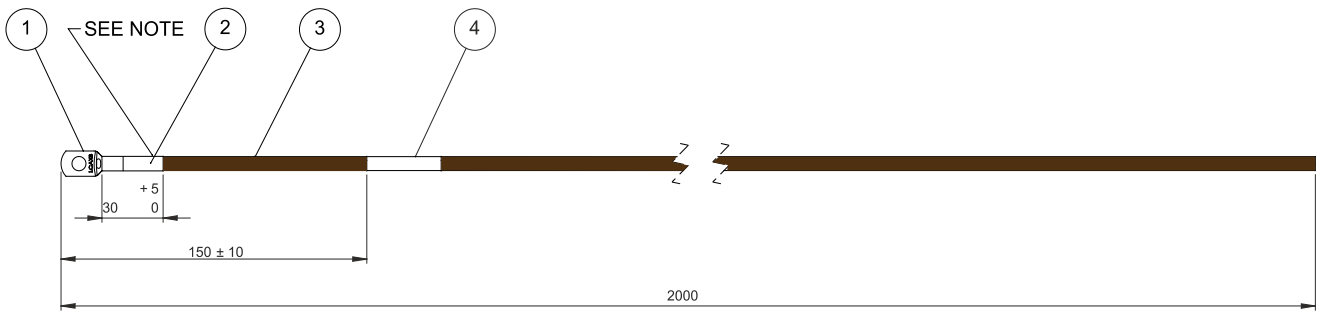


Barrel Lug end TAM Black Connection Cable

Figure 4: TAM Connection Cable (Part No. CBL-TAMSET)

Pin Positions

NOTE: CRIMP THE TERMINAL WITH PANDUIT CRIMPING TOOL BEFORE SHRINKING THE HEAT SHRINK TUBE.

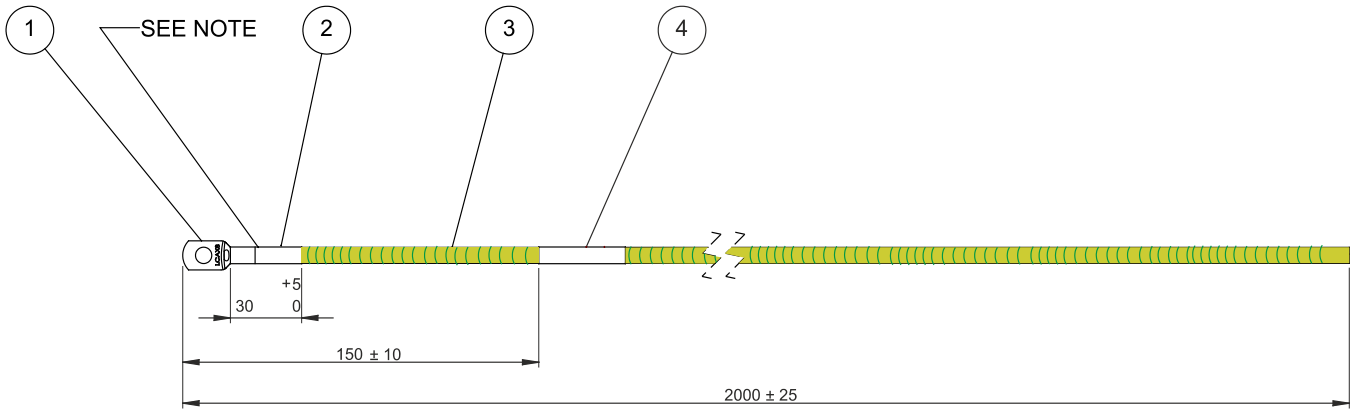


Barrel Lug end Motor Phase OUT Brown Connection Cable

Figure 5: Motor Phase Out Connection Cable (Part No. CBL-MTRDRUM)

Pin Positions

NOTE: CRIMP THE TERMINAL WITH PANDUIT CRIMPING TOOL BEFORE SHRINKING THE HEAT SHRINK TUBE.



Barrel Lug end Motor Phase OUT Yellow/Green Connection Cable

Figure 6: Motor PE Out Connection Cable (Part No. CBL-PEDRUMOUT)

The cables are connected as follows:



Figure 7: Motor Power Cable Ends

The cables are connected as follows:

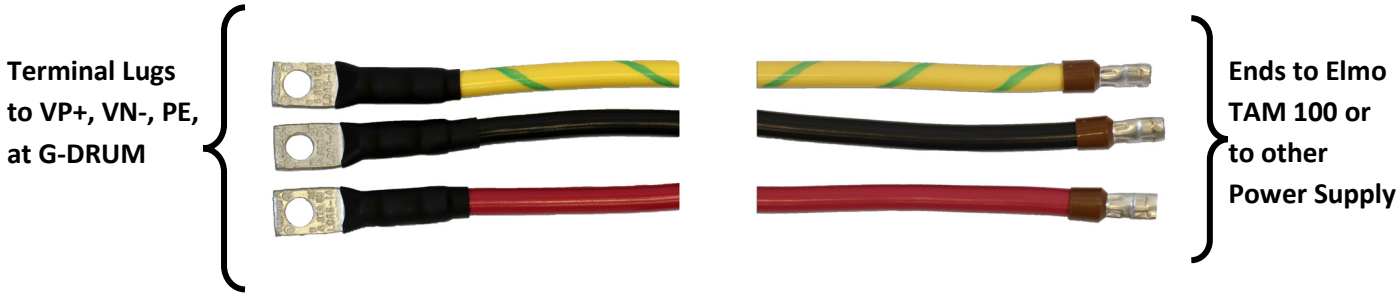


Figure 8: Main Power Cable Ends

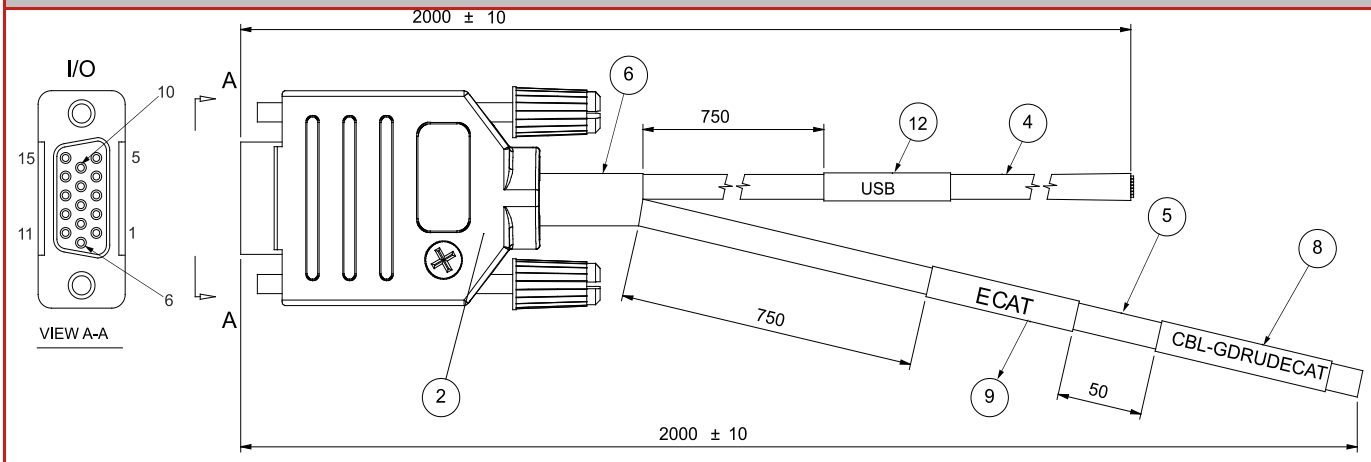
Chapter 6: EtherCAT & USB Cable (CBL-GDRUDECAT)

The EtherCAT and USB cable consists of a four twisted-pair 24-AWG, and two twisted-pair 26-AWG double shielded cables. It is connected using a 15-pin female high density D-type connector. The part number (P/N) of this cable is CBL-GDRUDECAT.

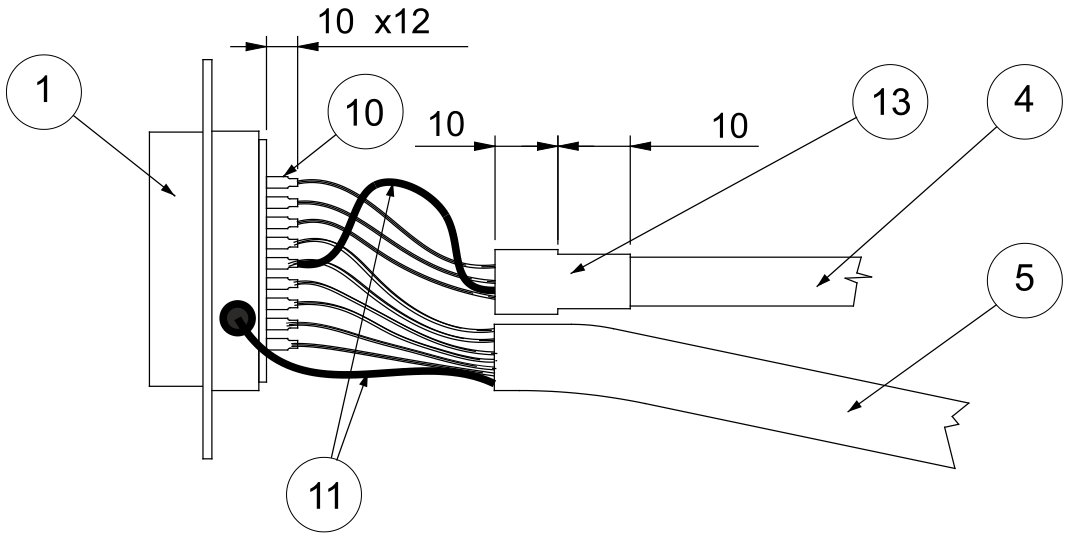
The general pinout of the EtherCAT and USB cable is as follows:

Cable	Pin No.	Signal	Color	Twisted & Shielded Wire
2X2, WIP-022x2x26	1	USB_VBUS	White	
	4	COMRET	Brown	
	2	USBD+	Yellow	Pair
	3	USBD-	Green	
	5	USB_SHIELD	Drain Wire	Drain Wire to connector frame
2X4, WIP-024x2x24	7	ECAT_IN_TX+	White	Pair
	12	ECAT_IN_TX-	Brown	
	8	ECAT_IN_RX+	Yellow	Pair
	13	ECAT_IN_RX-	Green	
	9	ECAT_OUT_TX+	Grey	Pair
	14	ECAT_OUT_TX-	Pink	
	10	ECAT_OUT_RX+	Red	Pair
	15	ECAT_OUT_RX-	Blue	
	Case	PE	Drain Wire	Drain Wire to connector frame
	8,13	N.C.	N.C.	N.C.

Pin Positions



15-Pin D-Type Female Connector and Cable



Drain wire soldered
to connector frame

Required Earthing for the 15-pin connector

Figure 9: EtherCAT & USB Cable (Part No. CBL-GDRUDECAT)

Note: The specific functionality of each pin is described fully in the *Gold Drum (DTYPE) Installation Guide*.

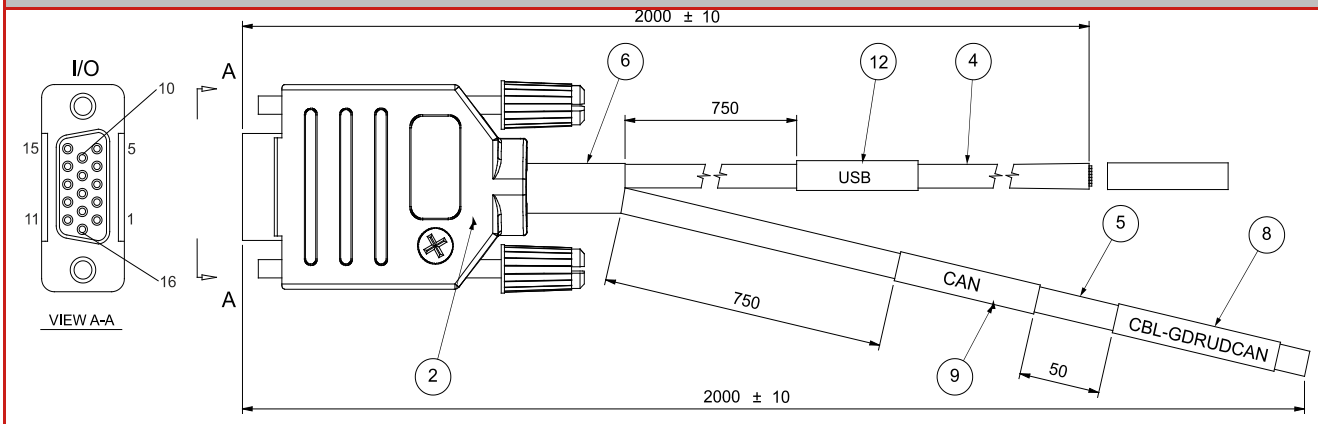
Chapter 7: CAN, RS-232/RS-422, & USB Cable (CBL-GDRUDCAN)

The CAN and USB cable consists of a six twisted-pair 24-AWG, and two twisted-pair 26-AWG double shielded cables. It is connected using a 15-pin female high density D-type connector. The part number (P/N) of this cable is CBL-GDRUDCAN.

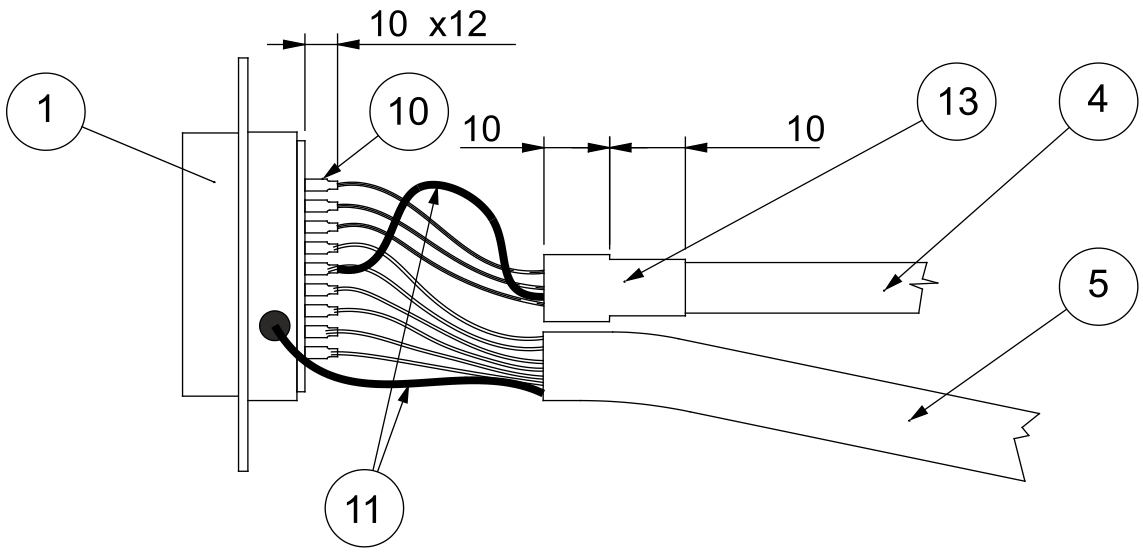
The general pinout of the CAN, RS-232/RS-422, and USB cable is as follows:

Cable	Pin No.	Signal	Color	Twisted & Shielded Wire
2X2, WIP-022x2x26	1	USB_VBUS	White	
	4	COMRET	Brown	
	2	USBD+	Yellow	Pair
	3	USBD-	Green	
	5	USB_SHIELD	Drain Wire	Drain Wire to connector frame
2X6, WIP-026x2x24	6	RX232_TX/RS422_TX-	Green	Pair
	11	RX232_RX/RS422_TX+	Yellow	
	7	RS422_RX+	White	Pair
	12	RS422_RX-	Brown	
	9	CANH	Orange	Pair
	14	CANL	Cyan	
	10	CANH	Blue	Pair
	15	CANL	Red	
	Case	PE	Drain Wire	Drain Wire to connector frame
	8,13	N.C.	Pink, Grey	Pair
	4	COMRET	Black	

Pin Positions



15-Pin D-Type Female Connector and Cable



Drain wire soldered
to connector frame

Required Earthing for the 15-pin connector

Figure 10: CAN & USB Cable (Part No. CBL-GDRUDCAN)

Note: The specific functionality of each pin is described fully in the *Gold Drum (DTYPE) Installation Guide*.

Chapter 8: CAN Terminator

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

The reflection suppresses the CAN signal (the CAN signal leads 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.


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