It is user RESPONSIBILITY to check that these "Wiring instructions" refers to product model and version that will be used.

In any case, regarding installation, use and maintenance, the complete Sanyo Denki instruction manual TAKES PRIORITY. The complete Sanyo Denki instruction manual is included, in PDF format, in the Starter Kit CD-Rom and the printed version is available on demand.

R.T.A. srl

MOTION CONTROL SYSTEMS

Wiring Procedure

This document summarizes how to build cables for motor, encoder and power supply for Sanyo Denki AC Servo Systems "QS1A" and "RS1A" Series.

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Contents

These instructions summarize how to build cables for the following servo motors and servo amplifiers:

- P20B10150D

- P30B04005D
- P30B04010D
- P30B06020D
- P30B06040D
- P30B08075D

- P50B04010D
- P50B05020D
- P50B07040D
- P50B08100H

- P60B13150H

- Q1AA10150D
- Q1AA13300D

- Q2AA10150B
- Q2AA13150H

- R2AA04010F
- R2AA06020F
- R2AA06040F
- R2AA08075F

- QS1A01AA	RS1A01AA
- QS1A03AA	RS1A03AA
- QS1A05AA	RS1A05AA
- QS1A10AA	RS1A10AA

Warning:

The following document describes how to build cables having length of 10 meters maximum. In case of needing flex chain cables or cables longer than 10 meters, please contact RTA technical department.

1- P3 AND P5 SERIES MOTOR CABLE – R2 SERIES MOTOR CABLE

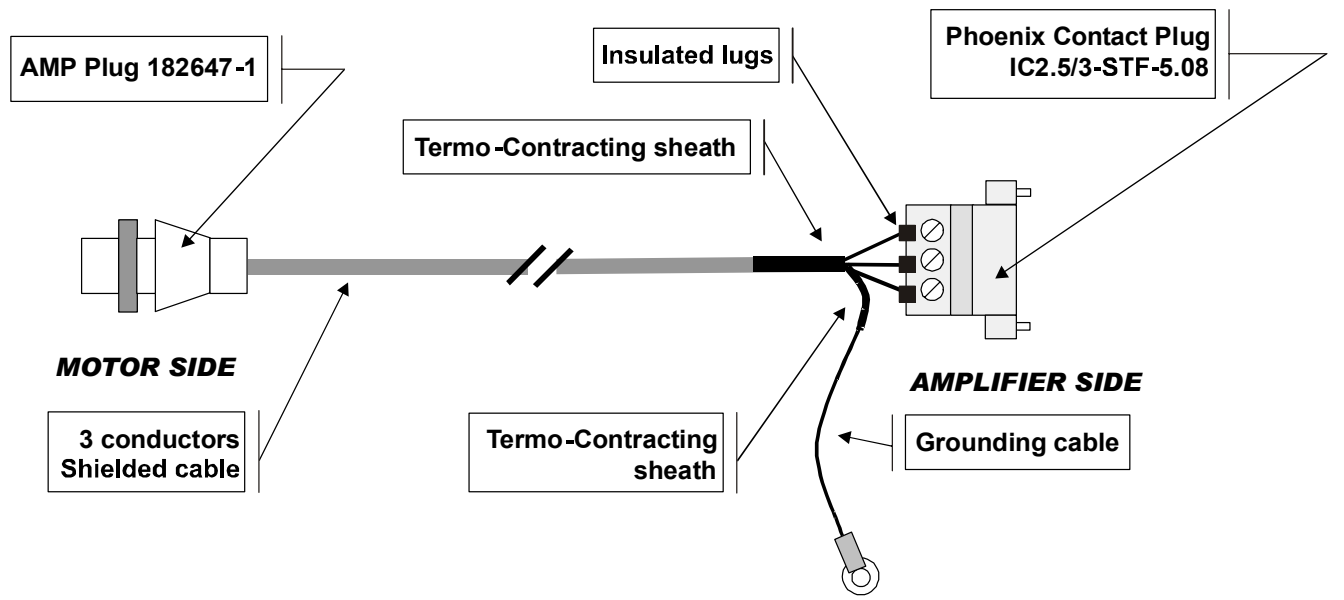


Figure 1

1.1- Components

Components		
Quantity	**Description**	**Notes**
4	**AMP** pins type **1-66101-9**	
1	**AMP** connector type **182647-1**	
1	**AMP** cable clamp type **182658-1**	
1	Phoenix Contact connector type **IC2.5/3-STF-5.08**	
	Three conductors shielded cable. Cross Section Area: 1 mm²	
100mm	Grounding cable. Colour: yellow/green. Cross Section Area: 1.5 mm²	
3	Insulated lugs. Cross Section Area: 1 mm²	Crimp the Insulated lugs at the end of the three conductors and insert them in the Phoenix Contact connector.
1	Round soldering lug for grounding cable. Cross Section Area: 1.5 mm²	

1.2- Wiring procedure

Be sure to use the right tool to wire the cable on the motor side. **RTA** recommends **AMP PRO-CRIMPER II** hand tool, model **58495-1** with die assembly **58495-2**.

Motor Side (**AMP** connector type **182647-1)**

Wiring	
Check Point	**Description**
1	Cut **10mm** of the external protection sheath.
2	Cut **3mm** of insulator on every single internal conductor.
3	Crimp every single internal conductor using **AMP PRO-CRIMPER II** model **58495-1**.
4	Be sure to use the **24-20 AWG** position of the AMP Pro-Crimper hand tool.
5	Crimp the shield in an **AMP** pin code **1-66101-9.**

Amplifier Side (**Phoenix Contact** connector type **IC2.5/3-STF-5.08**)

Wiring	
Check Point	**Description**
1	Cut **10mm** of the external protection sheath.
2	Cut **3mm** of insulator on every single internal conductor.
3	Crimp the lugs on the three conductors of the cable.
4	Insert the lugs in the Phoenix Contact connector type **IC2.5/3-STF-5.08**.

1.3- Ground wiring

On the amplifier side, weld the shield to the 100 mm long ground cable. The other side of the ground cable must be welded to the round soldering lug (see figure N. 1).

Grounding Cable: Length: 100 mm
Colour: yellow/green

Remember to insulate the soldering points by appropriate thermo-contracting sheath

1.4- Wiring Diagram

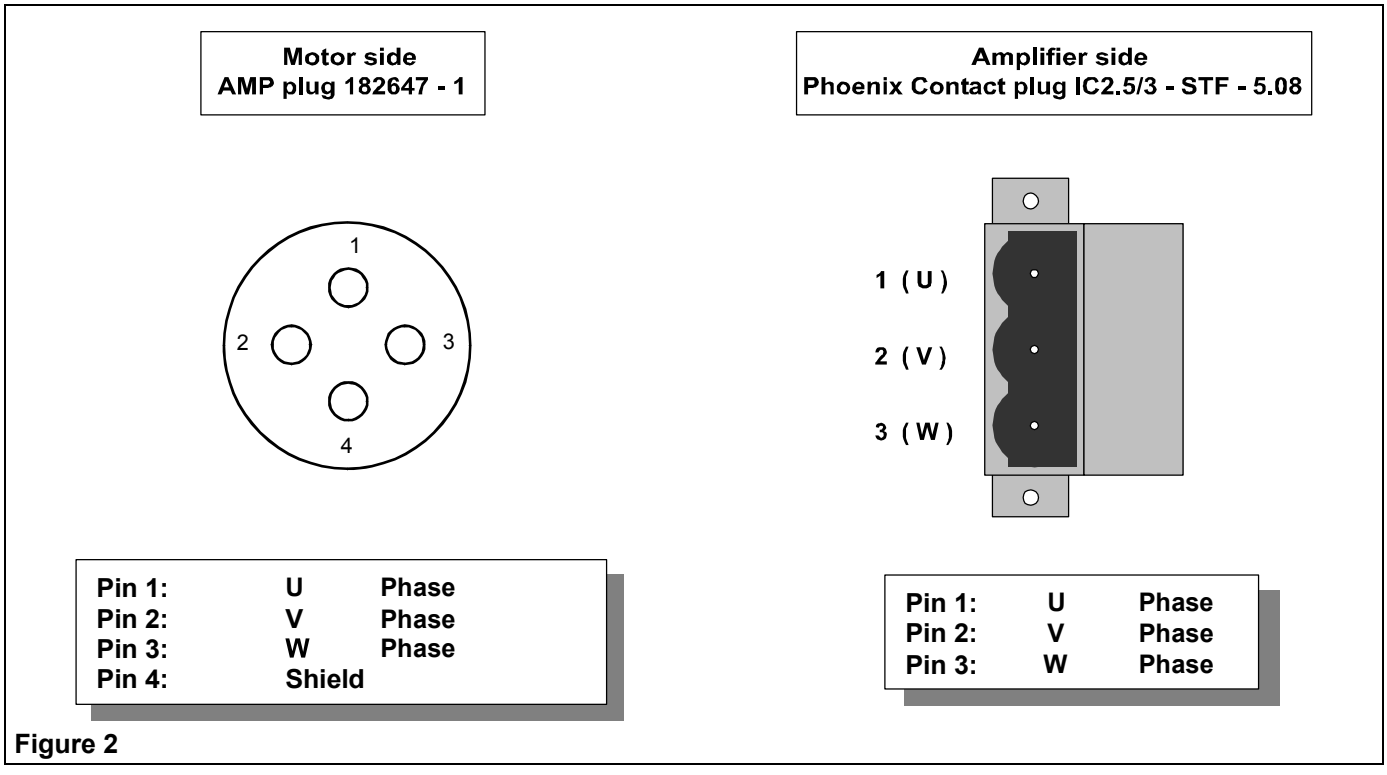


Figure 2

1.5 - Mounting Sequence

Mounting	
Check Point	**Description**
1	Insert the pins in the **AMP** connector type **182647-1** as described in figure N° 2
2	Screw the connector **182647-1** and the cable clamp **182658-1** together.
3	Complete this sequence mounting the cable clamp.

2- P3 AND P5 SERIES MOTOR CABLE EQUIPPED WITH HOLDING BRAKE POWER SUPPLY

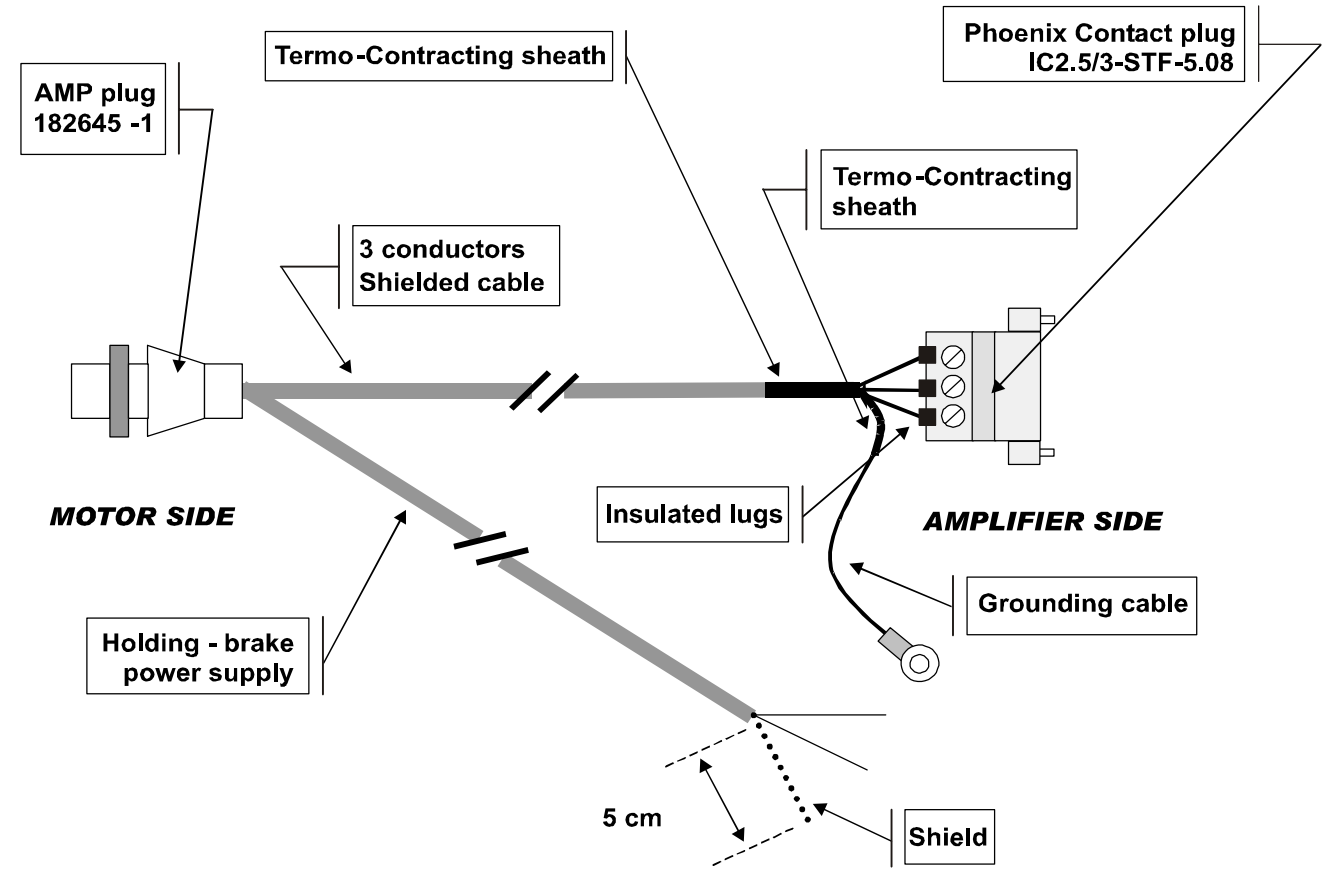


Figure 3

2.1- Components

Components		
Quantity	**Description**	**Notes**
6	**AMP** pins type **1-66101-9**.	
2	**AMP** keying connector type **200821-1**.	
1	**AMP** connector type **182645-1**.	
1	**AMP** cable clamp type **182663-1**.	
1	Phoenix Contact connector type **IC2.5/3-STF-5.08**.	
	Three conductors shielded cable. Cross Section Area: 1 mm².	
	Two conductors shielded cable. Cross Section Area: 0.75 mm².	
100mm	Grounding cable. Colour: yellow/green. Cross Section Area: 1.5 mm².	
3	Insulated lugs. Cross Section Area: 1 mm²	Crimp the Insulated lugs at the end of the three conductors and insert them in the Phoenix Contact connector.
1	Round soldering lug for grounding cable. Cross Section Area: 1.5 mm²	

2.2- Wiring procedure

Be sure to use the right tool to wire the cable on the motor side. **RTA** recommends **AMP PRO-CRIMPER II** hand tool, model **58495-1** with die assembly **58495-2**.

Motor Side (**AMP** connector type **182645-1**)

Wiring	
Check Point	**Description**
1	Cut **10mm** of the external protection sheath on both motor and brake cable.
2	Cut **3mm** of insulator on every single internal conductor.
3	Crimp every single internal conductor using **AMP PRO-CRIMPER II** model **58495-1**.
4	Be sure to use the **24-20 AWG** position of the **AMP** Pro-Crimper hand tool.
5	Crimp the shields of both, motor and brake cable, on the same connector pin: **PIN N° 4.**
6	Crimp the shields in an **AMP** pin code **1-66101-9**.
7	Insert two **AMP** keying connector type **200821-1** in the **AMP** connector, position 5 and 8 see figure N° 4

Amplifier Side (**Phoenix Contact** connector type **IC2.5/3-STF-5.08**)

Wiring	
Check Point	**Description**
1	Cut **10mm** of the external protection sheath.
2	Cut **3mm** of insulator on every single internal conductor.
3	Crimp the lugs on the three conductors of the cable.
4	Insert the lugs in the Phoenix Contact connector type **IC2.5/3-STF-5.08**.

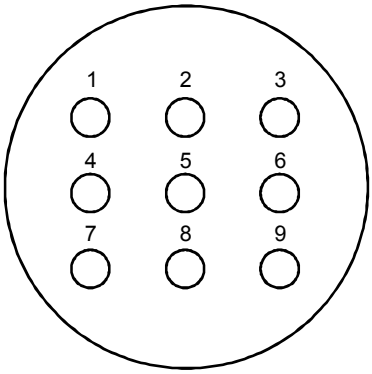
2.3 - Ground wiring

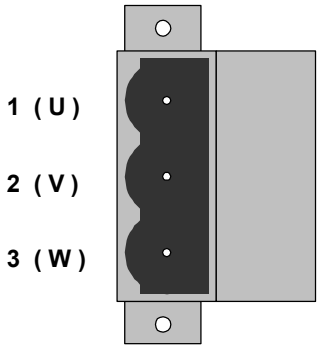
On the amplifier side, weld the shield to the 100 mm long ground cable. The other side of the ground cable must be welded to the round soldering lug see figure N° 3.

Grounding Cable: Length: 100 mm
Colour: yellow/green

Remember to insulate the soldering points by appropriate thermo-contracting sheath

2.4- Wiring diagram





Pin 1:	**U Phase**
Pin 2:	**V Phase**
Pin 3:	**W Phase**
Pin 4:	**Shield (of both cable)**
Pin 5:	**Keying plug**
Pin 6:	**BRAKE CABLE**
Pin 7:	**Not connected**
Pin 8:	**Keying plug**
Pin 9:	**BRAKE CABLE**

Pin 1:	**U**	**Phase**
Pin 2:	**V**	**Phase**
Pin 3:	**W**	**Phase**

Figure 4

2.5- Mounting Sequence

Mounting	
Check Point	**Description**
1	Insert the pins in the **AMP** connector type **182645-1** as described in figure N° 4
2	Screw the connector **182645-1** and the cable clamp **182663-1** together.
3	Complete this sequence mounting the cable clamp.

3- P3 AND P5 SERIES ENCODER CABLE

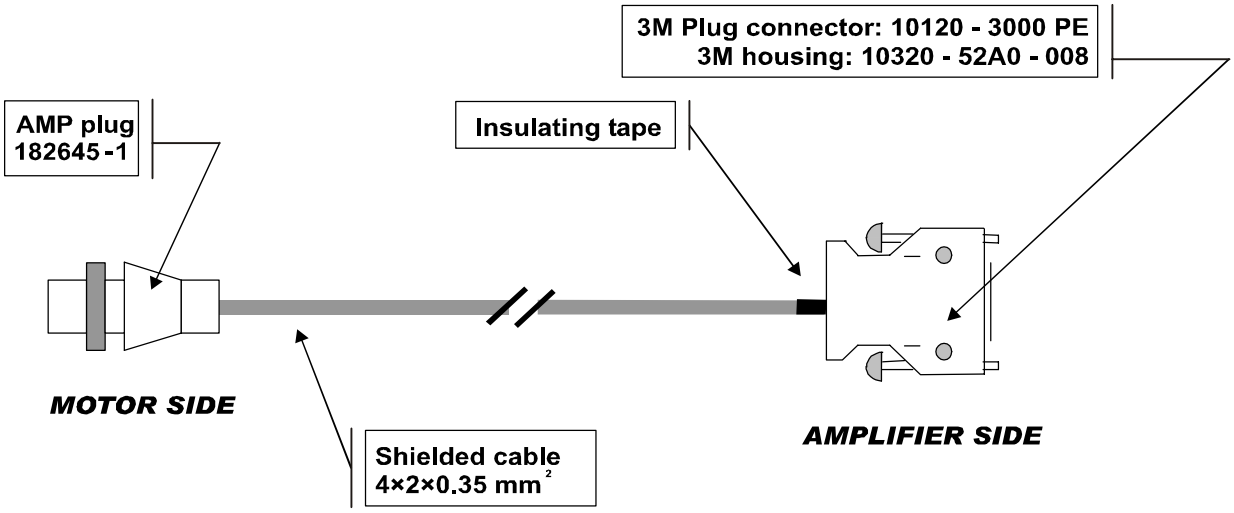


Figure 5

3.1 - Components

Components		
Quantity	**Descrption**	**Notes**
8	**AMP** pin type **1-66109-7**	
1	**AMP** pin type **1-66101-9**	
1	**AMP** connector type **182645-1**	
1	**AMP** cable clamp type **182663-1**	
1	**3M** connector type **10120-3000PE**	
1	**3M** housing type **10320-52A0-008**	
	8 connectors twisted pair connection shielded cable. Cross Section Area: **at least** 0.35 mm²	
	Insulating tape.	

3.2 - Wiring procedure

Be sure to use the right tool to wire the cable on the motor side. **RTA** recommends **AMP PRO-CRIMPER II** hand tool, model **58495-1** with die assembly **58495-2**.

Motor Side (**AMP** connector type **182645-1**)

Wiring	
Check Point	**Description**
1	Cut **15mm** of the external protection sheath.
2	Cut **3mm** of insulator on every single internal conductor.
3	Crimp every single internal conductor using **AMP PRO-CRIMPER II** code **58495-1**.
4	Crimp the 8 signal cables with **AMP** pins type **1-66109-7**. Use the **28-24 AWG** position of AMP Pro-Crimper hand tool.
5	Crimp the shield with an **AMP** pin type **1-66101-9**. Use the **24-20 AWG** position of AMP Pro-Crimper hand tool.

Amplifier Side (**3M** connector type **10120-3000PE**)

Amplifier Side		
Check Point	**Description**	**Notes**
1	Cut **20mm** of the external protection sheath.	
2	Insert the “L” metallic plate in the cable.	
3	Cut **3mm** of insulator on every single internal conductors.	
4	Roll up and weld the shield for a length of **10mm**.	
5	Sold the conductors in the **3M 10120-3000PE** pins.	Follow the diagram in figure N° 6
6	Sold the shield on the “L” metallic plate.	
7	Fasten the metallic plate to the cable and close the **3M** housing **10320-52A0-008**.	

3.3 – Wiring diagram

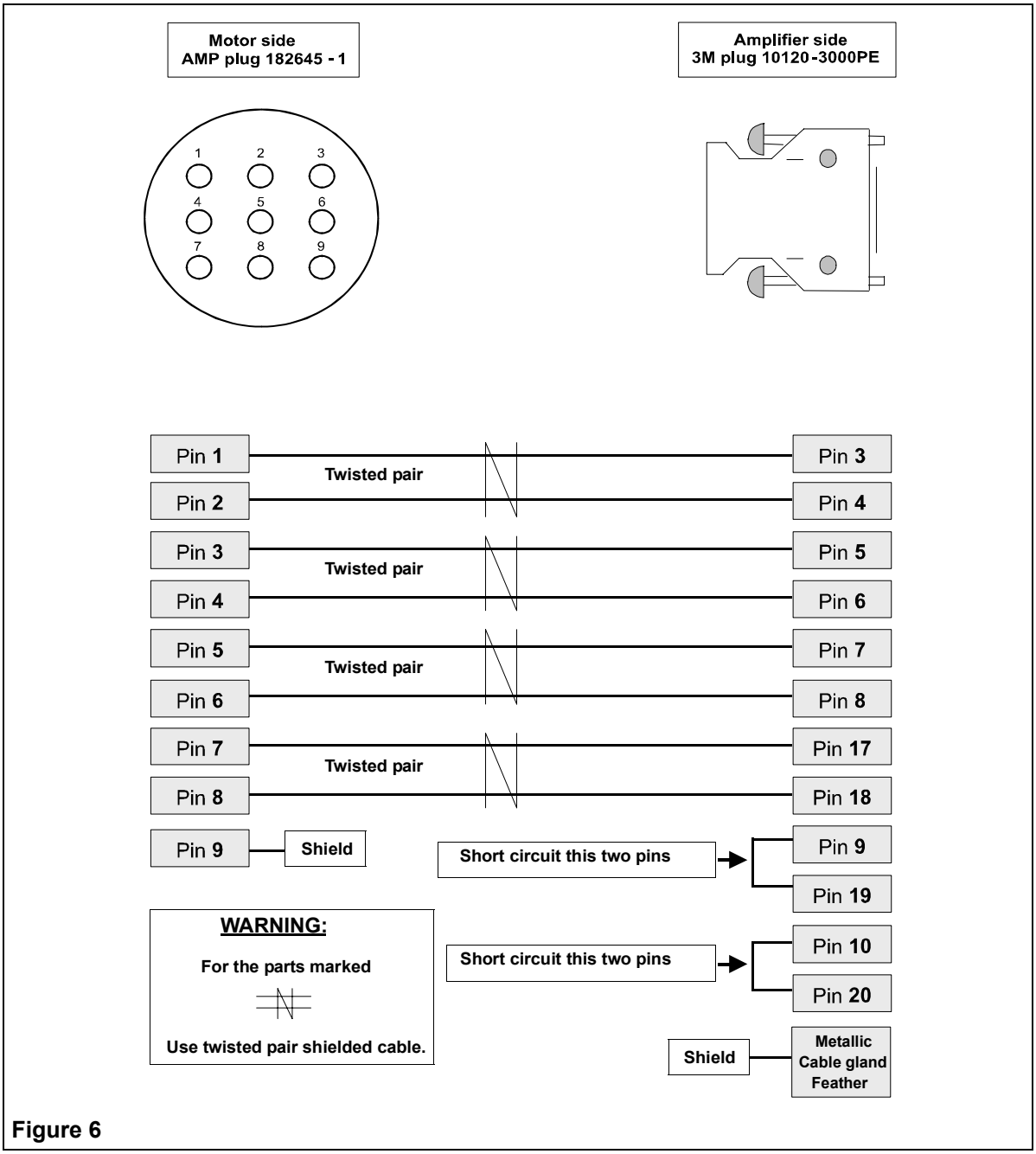


Figure 6

Warning: remember to protect the shield inside the AMP connector 182645-1 by insulated tape or thermo-contracting sheath.

3.4- Mounting sequence

Mounting	
Check Point	**Description**
1	Insert the pins in the **AMP** connector type **182645-1** as described in figure N° 6
2	Screw the connector **182645-1** and the cable clamp **182663-1** together.
3	Complete this sequence mounting the cable clamp.

4- R2 SERIES ENCODER CABLE

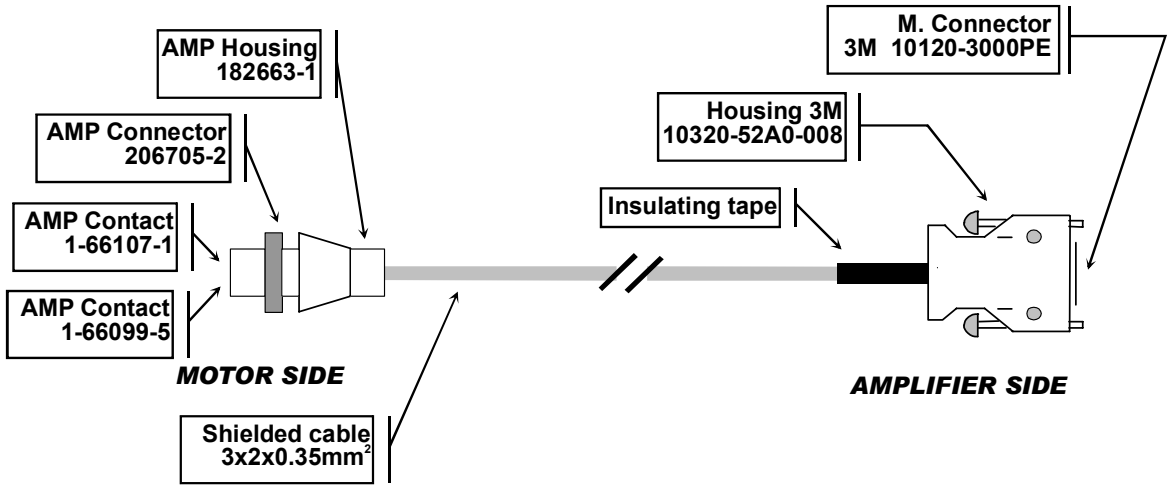


Figure 7

4.1- Components

COMPONENTS		
Quantity	**Description**	**Notes**
6	**AMP** pin type **1-66107-1**	
1	**AMP** pin type **1-66099-5**	
1	**AMP** connector type **206705-2**	
1	**AMP** cable clamp type **182663-1**	
1	**3M** connector type **10120-3000PE**	
1	**3M** housing type **10320-52A0-008**	
	6 conductors twisted pair shielded cable. Cross Section Area: **at least** 0.35 mm^2.	
	Insulating tape.	
	Thermo contracting sheat Ø 3 mm.	

4.2 - Wiring Procedure

Be sure to use the right tool to wire the cable on the motor side. **RTA** recommends **AMP PRO-CRIMPER II** hand tool, model **58495-1** with die assembly **58495-2**.

Motor Side (**AMP** connector type **206705-2**)

Wiring	
Check Point	**Description**
1	Cut **25 mm** of the external protection sheath.
2	Cut **4 mm** of insulator on every single internal conductor.
3	Crimp every single internal coductor using **AMP PRO-CRIMPER II** code **58495-1**.
4	Crimp the 6 signal cables with **AMP** pins type **1-66107-1**. Use the **28-24 AWG** position of AMP Pro-Crimper hand tool.
5	Crimp the shield with **AMP** pins type **1-66099-5**. Use the **24-20 AWG** position of AMP Pro-Crimper hand tool.
8	Insert the crimped pins in the **AMP** connector **206705-2 (Figure 8).**
6	Screw the connector **206705-2** and the cable clamp **182663-1** together.
7	Insert the cable clamp.

Amplifier Side (**3M** connector type **10120-3000PE**)

Wiring	
Check Point	**Description**
1	Cut **20 mm** of the external protection sheath.
2	Insert the “L” metallic plate in the cable.
3	Cut **3 mm** of insulator on every single internal conductors.
4	Roll up and weld the shield for a length of **10 mm**.
5	Sold the conductors in the **3M 10120-3000PE** pins **(Figure 8).**
6	Sold the shield on the “L” metallic plate.
7	Fasten the metallic plate to the cable and close the **3M** cable clamp **10320-52A0-008**.

4.3- Wiring Diagram

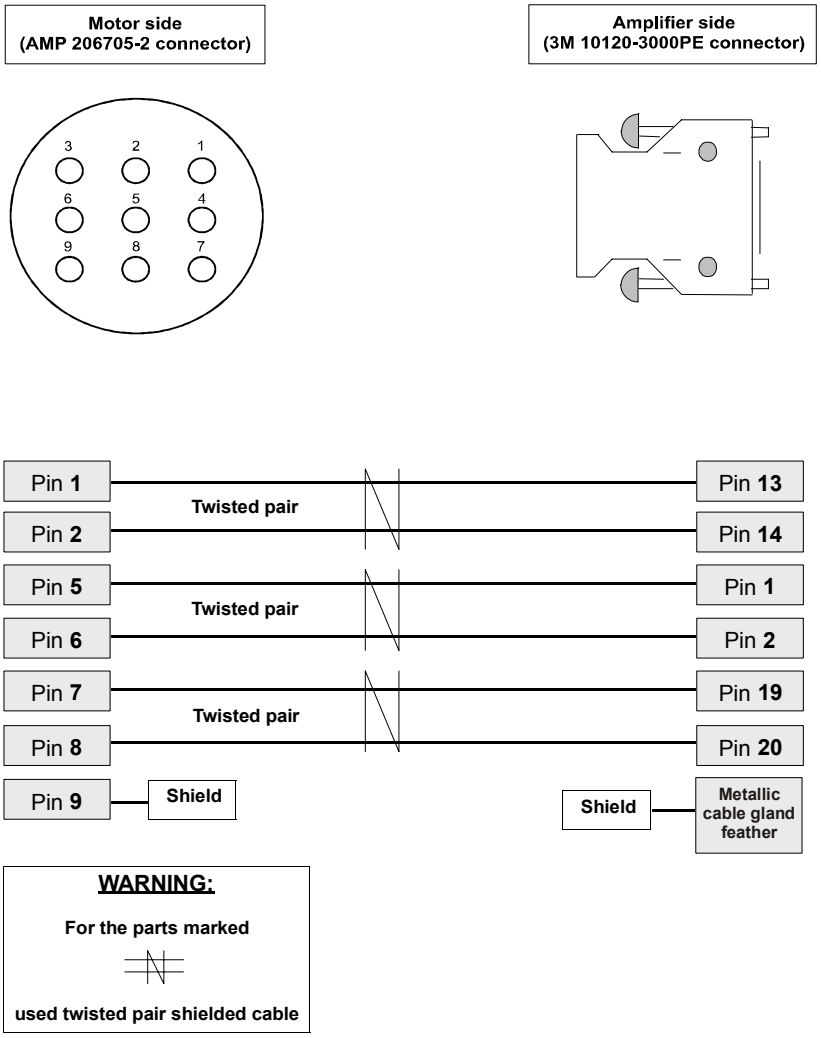


Figure 8

Warning: remember to protect the shield inside the AMP connector, type 206705-2 by insulated tape or thermo contracting sheath.

5- POWER SUPPLY CABLE FOR "QS1A" AND "RS1A" SERIES SERVO AMPLIFIERS – MODELS UP TO 30 A

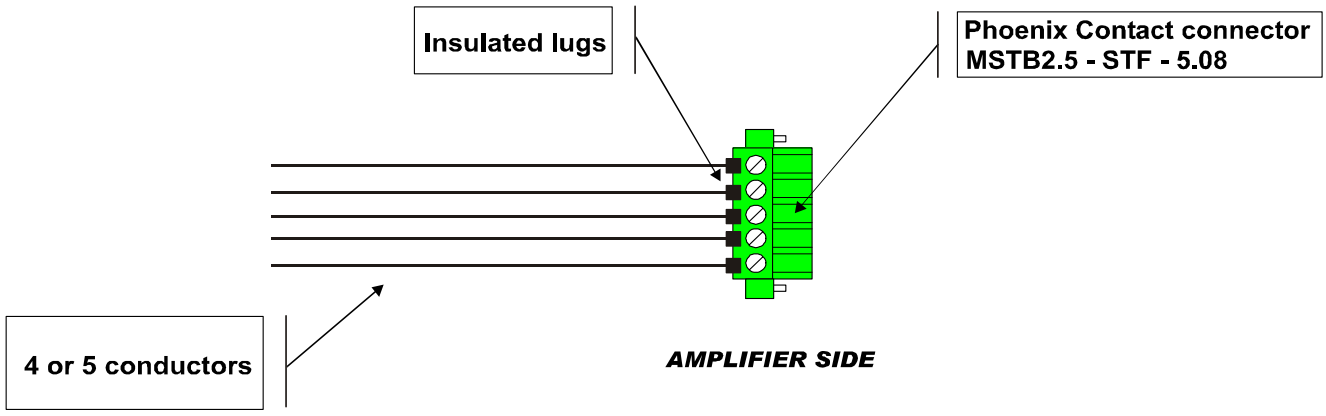


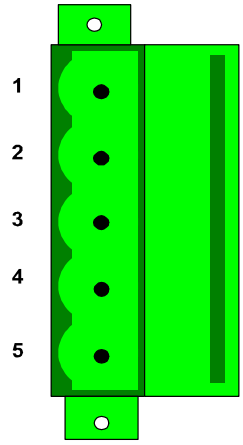
Figure 9

5.1- Components

Components		
Quantity	**Description**	**Notes**
1	Phoenix Contact connector type **MSTB2.5/5-STF-5.08**	
	Number four or five wires. Cross Section Area: 1 mm².	When your power supply is 230VAC single phase, use four wires. Otherwise when your power supply is 230VAC three phase, use five wires.
4	Insulated lugs. Cross Section Area: 1 mm².	Crimp the Insulated lugs at the end of the conductors and insert them in the Phoenix Contact connector.

Warning: When your power supply is 230VAC single phase, DO NOT USE PIN N°2.

5.2- Wiring diagram



Pin 1:	T	Phase
Pin 2:	S	Phase
Pin 3:	R	Phase
Pin 4:	t	Phase
Pin 5:	r	Phase

Figure 10

6- POWER SUPPLY CABLE FOR "QS1A" AND "RS1A" SERIES SERVO AMPLIFIERS – MODEL 50 A

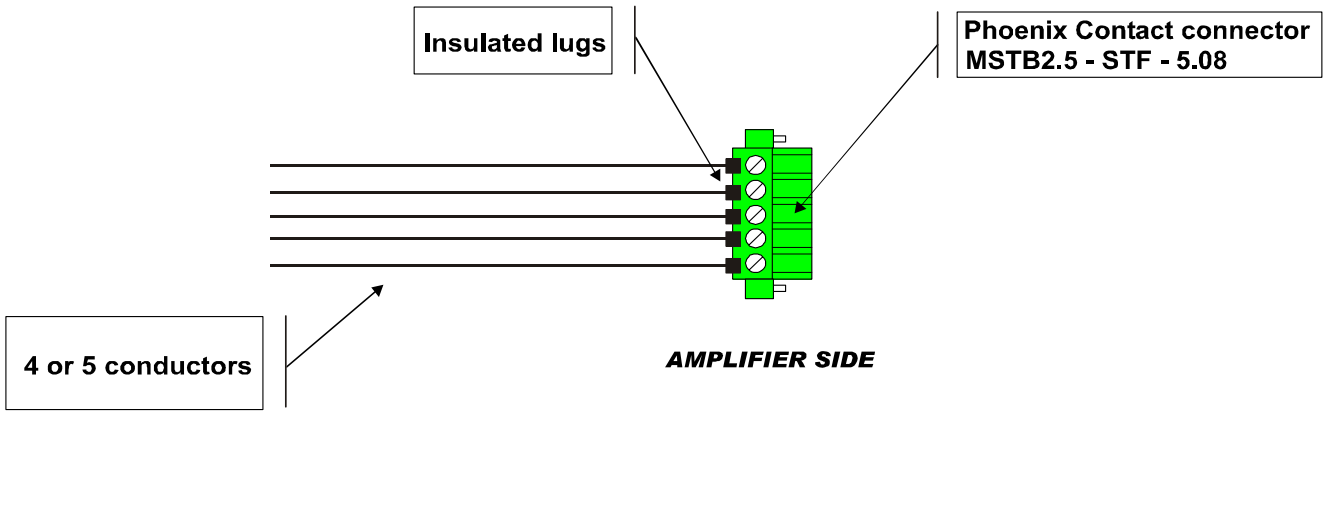


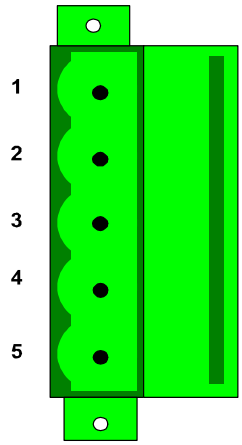
Figure 11

6.1- Components

Components		
Quantity	**Description**	**Notes**
1	Phoenix Contact connector type **MSTB2.5/5-STF-5.08**	
	Number four or five wires. Cross Section Area: 2.5 mm².	When your power supply is 230VAC single phase, use four wires. Otherwise when your power supply is 230VAC three phase, use five wires.
4	Insulated lugs. Cross Section Area: 2.5 mm².	Crimp the Insulated lugs at the end of the conductors and insert them in the Phoenix Contact connector.

Warning: When your power supply is 230VAC single phase, DO NOT USE PIN N°2.

6.2- Wiring diagram



Pin 1:	T	Phase
Pin 2:	S	Phase
Pin 3:	R	Phase
Pin 4:	t	Phase
Pin 5:	r	Phase

Figure 12

7- POWER SUPPLY CABLE FOR "QS1A" AND "RS1A" SERIES SERVO AMPLIFIERS – MODEL 100 A

To build this supply cable, please refer to the complete Sanyo Denki instruction manual.

8- MOTOR CABLE FOR P20B10150D, Q2AA10150B AND Q1AA10150D MOTOR TYPES

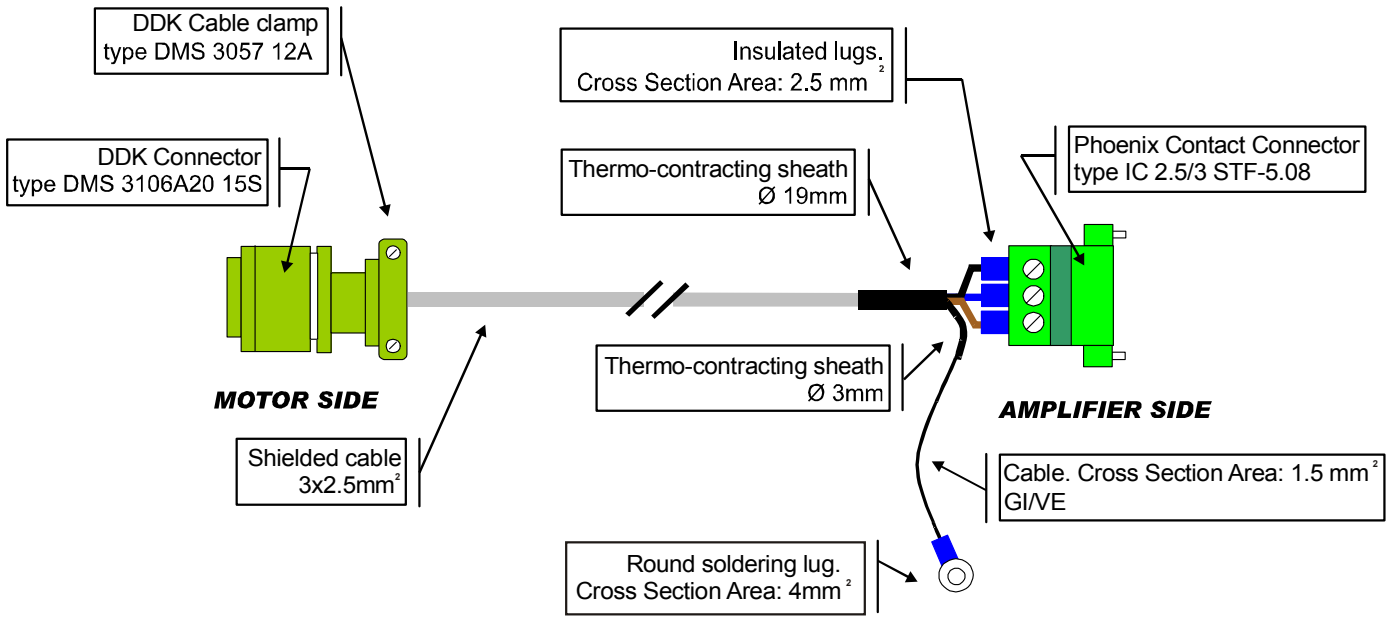


Figure 13

8.1- Components

Components		
Quantity	**Description**	**Notes**
1	**DDK** connector type **DMS 3106 A20 15S**	
1	**DDK** cable clamp type **DMS 3057 12A**	
1	Phoenix Contact connector type **IC2.5/3-STF-5.08**	
	Three conductors shielded cable. Cross Section Area: 2.5 mm²	
100mm	Grounding cable. Colour: yellow/green. Cross Section Area: 1.5 mm²	
3	Insulated lugs. Cross Section Area: 2.5 mm²	Crimp the Insulated lugs at the end of the three conductors and insert them in the Phoenix Contact connector.
1	Round soldering lug for grounding cable. Cross Section Area: 4 mm²	
	Thermo-contracting sheath. Ø 19 mm	
	Thermo-contracting sheath. Ø 3 mm	

8.2- Wiring procedure

Motor Side		
Check Point	**Description**	**Notes**
1	Insert the **DDK** cable clamp type **DMS 3057 12A** in the cable.	
2	Cut **30mm** of the external protection sheath.	
3	Cut **6mm** of insulator on every single internal conductors.	
4	Roll up and weld the shield. Insert the welded shield in **16mm** of thermo-contracting sheath **Ø 3mm**.	
5	Sold the conductors and the shield in the **DDK DMS 3106 A20 15S** pins.	Follow the diagram in figure N° 14
6	Screw the cable clamp and the connector together.	

8.3- Wiring procedure

Amplifier Side		
Check point	**Description**	**Notes**
1	Insert the cable in **40mm** of thermo-contracting sheath **Ø 19mm**.	
2	Cut **35mm** of the external protection sheath.	
3	Cut **6mm** of insulator on every single internal conductors.	
4	Crimp every single internal conductors with insulated lugs.	
5	Roll up and weld the shield for a length of **10mm**.	
6	Cut **8mm** of insulator on both sides of the grounding cable.	
7	Weld one side on the grounding cable to the round soldering lug.	
8	Sold the other side of the grounding cable to the shield and insulate the soldering point by thermo-contracting sheath for a length of **10mm**.	
9	Screw the conductors in the Phoenix Contact connector type **IC2.5/3-STF-5.08.**	Follow the diagram in figure N° 14

8.4- Wiring diagram

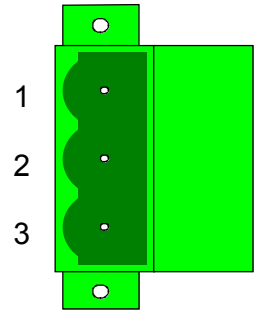


Figure 14

Amplifier Side		*Motor Side*
Phoenix Contact IC2.5/3-STF-5.08		**DDK DMS 3106A20 15S**
1 [U]		A
2 [V]		B
3 [W]		C
Grounding cable	shield	D

9- MOTOR CABLE FOR P60B13150H AND Q2AA13150H MOTOR TYPES

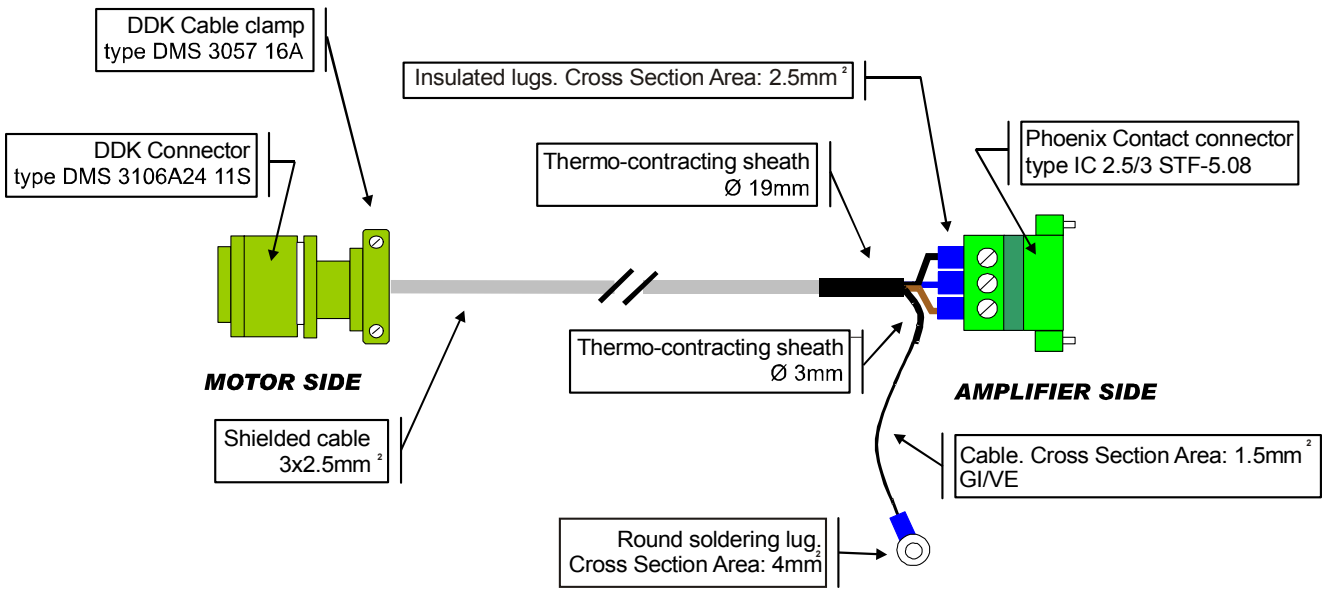


Figure 15

9.1- Components

Quantity	Description	Notes
1	**DDK** connector type **DMS 3106 A24 11S**	
1	**DDK** cable clamp type **DMS 3057 16A**	
1	Phoenix Contact connector type **IC2.5/3-STF-5.08**	
	Three conductors shielded cable. Cross Section Area: 2.5 mm²	
160mm	Grounding cable. Colour: yellow/green. Cross Section Area: 1.5 mm²	
3	Insulated lugs. Cross Section Area: 2.5 mm²	
1	Round soldering lug for grounding cable. Cross Section Area: 4 mm²	
	Thermo-contracting sheath. Ø 3 mm	
	Thermo-contracting sheath. Ø 19 mm	

9.2- Wiring procedure

Motor Side		
Check Point	**Description**	**Notes**
1	Insert the **DDK** cable clamp type **DMS 3057 16A** in the cable.	
2	Cut **30mm** of the external protection sheath.	
3	Cut **6mm** of insulator on every single internal conductors.	
4	Cut the grounding cable for a length of **60mm**. Cut **6mm** of the insulator on both side of this one.	
5	Roll up and weld the shield for a length of **10mm**. Sold one side of the ground cable to the shield.	Remember to insulate the soldering point by **20mm** of thermo-contracting sheath Ø 3 mm.
6	Sold the conductors, the shield and the ground cable in the **DDK DMS 3106 A24 11S** pins.	Follow the diagram in figure N° 16
7	Screw the cable clamp and the connector together.	

9.3- Wiring procedure

Amplifier Side		
Fase	**Descrizione**	**Note**
1	Insert the cable in **40mm** of thermo-contracting sheath **Ø 19mm**.	
2	Cut **35mm** of the external protection sheath.	
3	Cut **6mm** of insulator on every single internal conductors.	
4	Crimp every single internal conductors with insulated lugs.	
5	Roll up and weld the shield for a length of **10mm**.	
6	Cut **8mm** of insulator on both sides of the **100mm** long grounding cable.	
7	Weld one side on the grounding cable to the round soldering lug.	
8	Sold the other side of the grounding cable to the shield and insulate the soldering point by thermo-contracting sheath for a length of **10mm**.	
9	Screw the conductors in the Phoenix Contact connector type **IC2.5/3-STF-5.08**.	Follow the diagram in figure N° 16

9.4- Wiring diagram

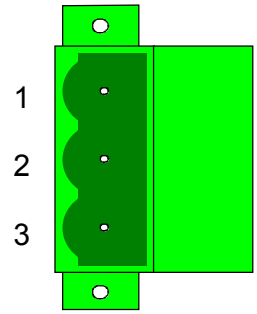


Figure 16

Amplifier Side		***Motor Side***
Phoenix Contact IC2.5/3-STF-5.08		**DDK DMS 3106A24 11S**
1 [U]		D
2 [V]		E
3 [W]		F
Ground Cable	Shield	G, H **(*)**

(*) Warning: short-circuit pins **G** and **H** by ground cable.

10-MOTOR CABLE FOR Q1AA13300D MOTOR TYPE

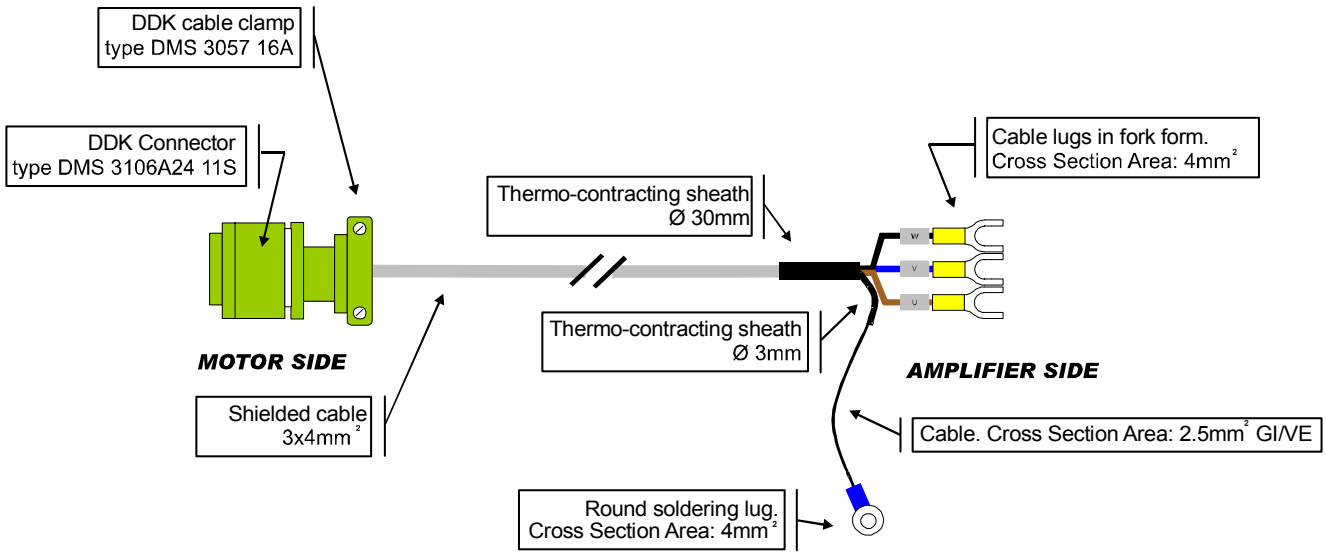


Figure 17

10.1- Components

Quantity	Description	Notes
1	**DDK** connector type **DMS 3106 A24 11S**	
1	**DDK** cable clamp type **DMS 3057 16A**	
	Three conductors shielded cable. Cross Section Area: 4 mm²	
160mm	Grounding cable. Colour: yellow/green. Cross Section Area: 2.5 mm²	
3	Cable lugs in fork form. Cross Section Area: 4 mm²	
1	Round soldering lug for grounding cable. Cross Section Area: 4 mm²	
	Thermo-contracting sheath Ø 3 mm	
	Thermo-contracting sheath Ø 30 mm	

10.2- Wiring procedure

Motor Side		
Check Point	**Description**	**Notes**
1	Insert the **DDK** cable clamp type **DMS 3057 16A** in the cable.	
2	Cut **30mm** of the external protection sheath.	
3	Cut **6mm** of insulator on every single internal conductors.	
4	Cut the grounding cable for a length of **60mm**. Cut **6mm** of the insulator on both side of this one.	
5	Roll up and weld the shield for a length of **10mm**. Sold one side of the ground cable to the shield.	Remember to insulate the soldering point by **20mm** of thermo-contracting sheath Ø 3 mm.
6	Sold the conductors, the shield and the ground cable in the **DDK DMS 3106 A24 11S** pins.	Follow the diagram in TABLE N° 1
7	Screw the cable clamp and the connector together.	

10.3- Wiring procedure

Amplifier Side		
Check Point	**Description**	**Notes**
1	Insert the cable in **50mm** of thermo-contracting sheath **Ø 30mm**.	
2	Cut **35mm** of the external protection sheath.	
3	Cut **10mm** of insulator on every single internal conductors.	
4	Crimp every single internal conductors with insulated lugs.	
5	Roll up and weld the shield for a length of **10mm**.	
6	Cut **8mm** of insulator on both sides of **100mm** long grounding cable.	
7	Weld one side on the grounding cable to the round soldering lug.	
8	Sold the other side of the grounding cable to the shield and insulate the soldering point by thermo-contracting sheath for a length of **10mm**.	

10.4- Wiring diagram

TABLE 1		
Amplifier Side		***Motor Side***
Insulated lugs		**DDK DMS 3106A24 11S**
[U]		D
[V]		E
[W]		F
Ground cable	Shield	G, H (*)
(*) Warning: short-circuit pins **G** and **H** by ground cable.		

11- ENCODER CABLE FOR P20B10150D, P60B13150H, Q1AA13300D, Q1AA10150D, Q2AA10150B AND Q2AA13150H MOTOR TYPES

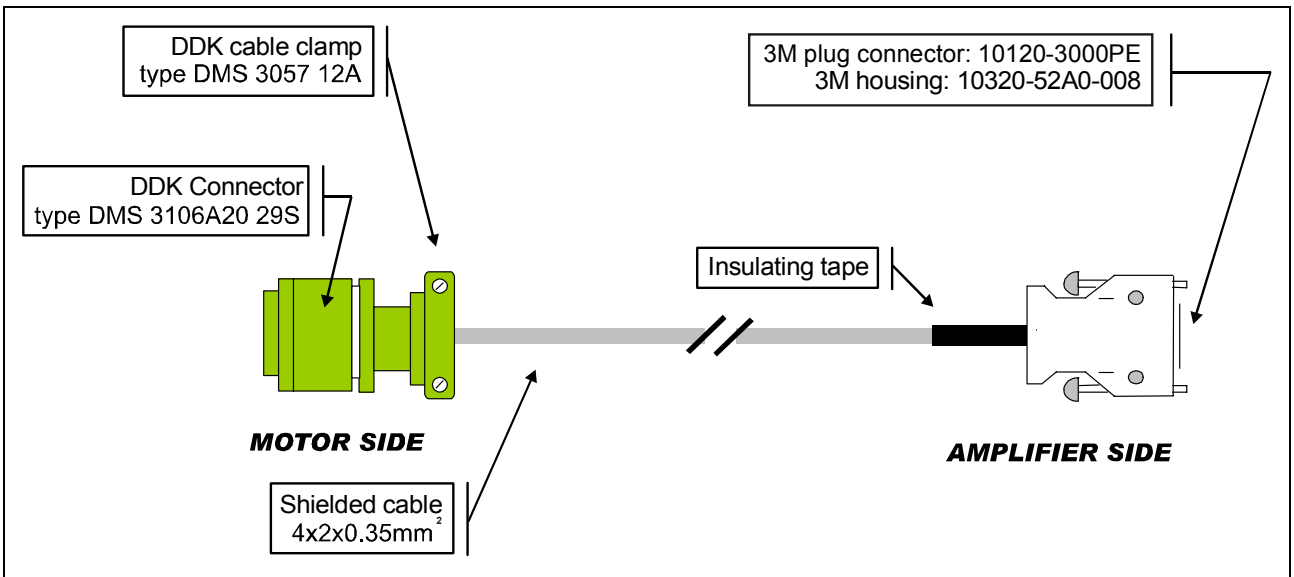


Figure 18

11.1- Components

Quantity	Description	Notes
1	**DDK** connector type **DMS 3106 A20 29S**	
1	**DDK** cable clamp type **DMS 3057 12A**	
	8 connectors twisted pair connection shielded cable. Cross Section Area: **at least** 0.35 mm²	
1	**3M** connector type **10120-3000PE**	
1	**3M** cable clamp type **10320-52A0-008**	
	Thermo-contracting sheath Ø 3 mm	

11.2- Wiring procedure

Motor Side		
Check Point	**Description**	**Notes**
1	Insert the **DDK** cable clamp type **DMS 3057 12A** in the cable.	
2	Cut **30mm** of the external protection sheath.	
3	Cut **5mm** of insulator on every single internal conductors.	
4	Roll up and weld the shield for a length of **10mm**.	Remember to insulate the soldering point by **20mm** of thermo-contracting sheath Ø 3 mm.
5	Sold the conductors and the shield in the **DDK DMS 3106 A20 29S** pins.	Follow the diagram in figure N° 19
6	Insulate the end of the cable by insulated tape.	
7	Screw the cable clamp and the connector together.	

11.3- Wiring procedure

Amplifier Side		
Check Point	**Description**	**Notes**
1	Cut **20mm** of the external protection sheath.	
2	Insert the “L” metallic plate in the cable.	
3	Cut **3mm** of insulator on every single internal conductors.	
4	Roll up and weld the shield for a length of **10mm**.	
5	Sold the conductors in the **3M 10120-3000PE** pins.	Follow the diagram in figure N° 19
6	Sold the shield to the “L” metallic plate.	
7	Fasten the metallic plate to the cable and close the **3M** cable clamp type **10320-52A0-008**.	

11.4- Wiring diagram

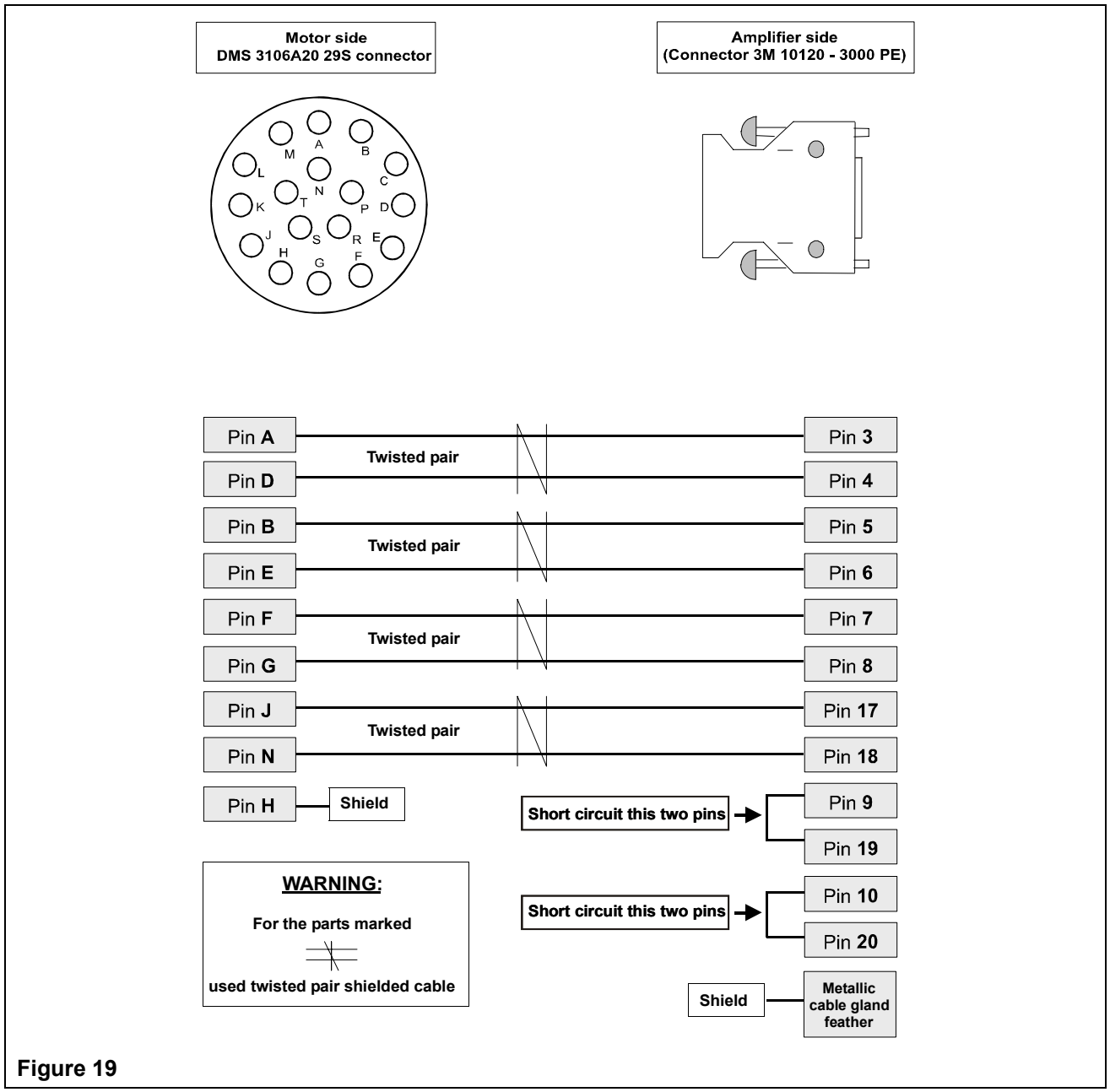


Figure 19

12- BRAKE CABLE FOR P20B10150D, P60B13150H, Q1AA10150D, Q1AA13300D, Q2AA10150B AND Q2AA13150H MOTOR TYPES

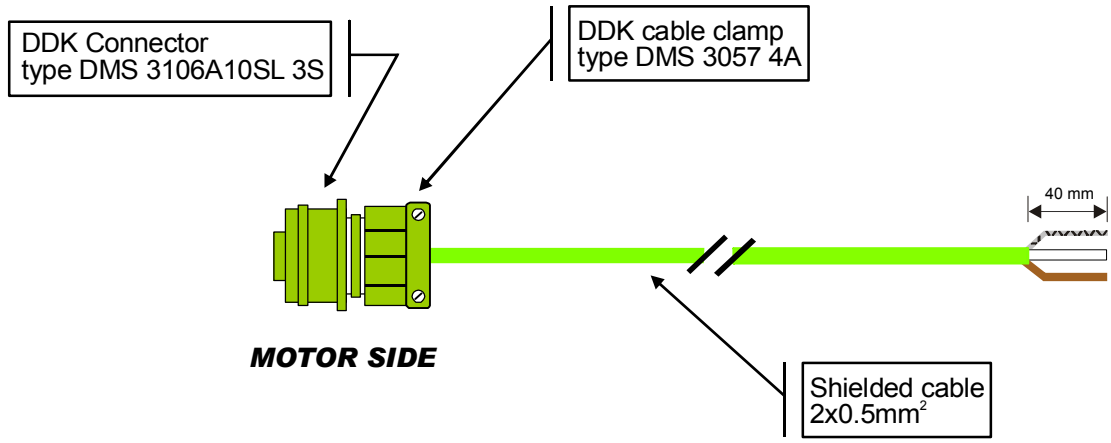


Figure 20

12.1- Components

Quantity	Description	Notes
1	**DDK** connector type **DMS 3106A10SL 3S**	
1	**DDK** cable clamp type **DMS 3057 4A**	
	Two conductors shielded cable. Cross Section Area: **at least** 0.5 mm²	
	Thermo-contracting sheath Ø 3 mm	

12.2- Wiring procedure

WIRING		
Fase	**Descrizione**	**Notes**
1	Cut **20mm** of the external protection sheath.	
2	Cut **3mm** of insulator on every single internal conductors.	
3	Roll up and weld the shield for a length of **10mm**.	
4	Sold the conductors in the **DDK DMS 3106A10SL 3S** pins.	Follow the diagram in figure N° 21
5	Screw the cable clamp and the connector together.	
6	On the other side, cut **40mm** of insulator on every single internal conductors.	

12.3- Wiring diagram

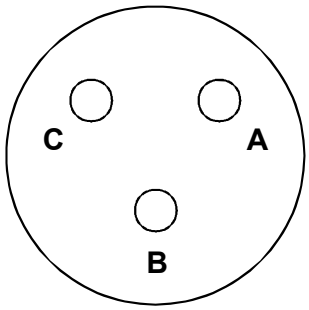
		Motor side
		**DDK DMS 3106A10SL 3S**
	BRAKE CABLE	A
	BRAKE CABLE	B
	SHIELD	C

Figure 21

13- BRAKE CABLE FOR R2 SERIES MOTOR TYPE

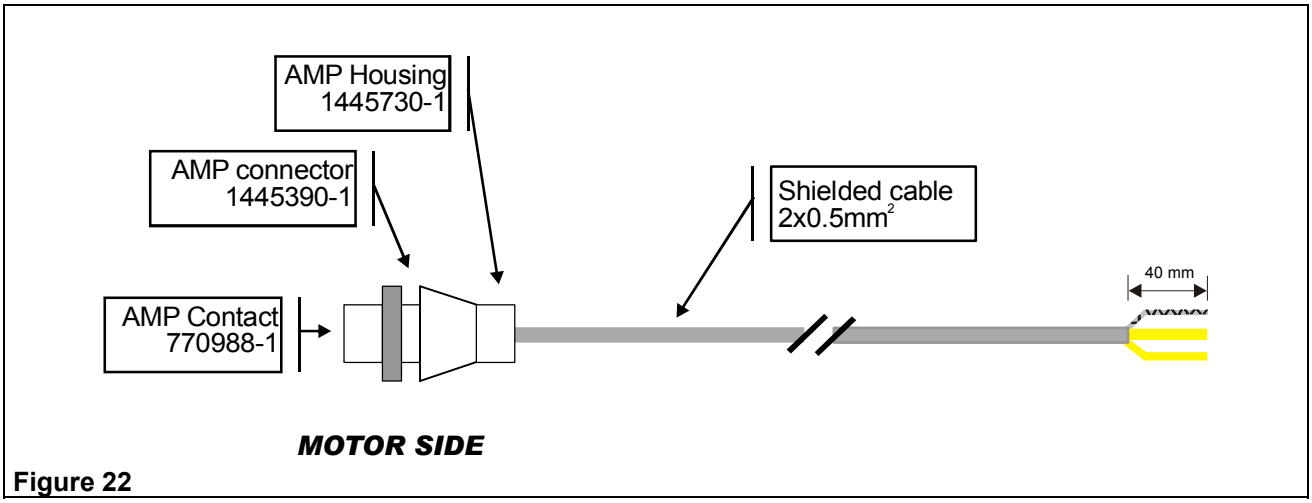


Figure 22

13.1- Components

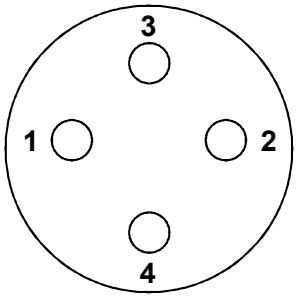
Quantità	Description	Notes
1	**AMP** connector type **1445390-1**	
1	**AMP** cable clamp type **1445730-1**	
2	**AMP** pin type **770988-1**	
	2 conductors shielded cable. Cross Section Area: **at least** 0.5 mm^2	

13.2- Wiring Procedure

Be sure to use the right tool to wire the cable on the motor side. **RTA** recommends **AMP CERTI-CRIMP II** hand tool, model **91522-1**.

Wiring	
Check Point	**Description**
WARNING	Remove the yellow rubber (wire entry seal) from the **AMP** connector type **1445390-1**. If the connector is bought from R.T.A. S.r.l. this operation is not necessary.
1	Cut **20 mm** of the external protection sheath.
2	Cut **3 mm** of insulator on every single internal conductors.
3	Cut the shield.
4	Crimp the conductors using the **AMP** pins type **770988-1**. Use the **22-20** position of the **AMP CERTI-CRIMP II** model **91522-1**.
5	Insert the crimped pins in the connector **AMP 1445390-1 (Figure 23).**
6	Screw the connector **1445390-1** and the cable clamp **1445730-1** together.
7	Insert the cable clamp.
8	On the other side, cut **40 mm** of the external protection sheath.
9	Cut **5 mm** of insulator on every single internal conductors. Roll up the shield.

13.3- Wiring Diagram



	Motor Side
	AMP 1445390-1
Not connected	1
Not connected	2
Brake Cable	3
Brake Cable	4

Figure 23

NOTICES, HAZARDS AND CAUTIONS

- **Mounting, in accordance with instructions ,has to be executed by a professional assembler who knows problems and rules about the amplifiers.**
- **R.T.A. doesn't take responsibility regarding not well-done executions and that doesn't observed requirements about rules relative to equipment of the drives.**
- **This instruction sheet is a document to ease the user that already knows instruction manual content: for any questions read the complete Sanyo Denki manual.**
- **Read the complete Sanyo Denki manual for the installation and use of the brushless servo systems.**