OPERATOR MANUAL

UNI-9700

Dual-Spotter DELUXE

Aluminum & Steel Stud Welding Gun

IMPORTANT: BEFORE USING THE EQUIPMENT BE SURE TO READ THIS MANUAL COMPLETELY. THE MANUAL MUST BE STORED IN A PLACE FAMILIAR TO ALL USERS FOR THE ENTIRE OPERATING LIFE OF THE EQUIPMENT. THIS EQUIPMENT MUST BE USED SOLELY FOR IT'S DEFINED WELDING OPERATIONS.

UNI-9700- 1116-ver-002

WARNING: READ ALL SAFETY DIRECTIONS

1) **ELECTRIC SHOCK - *May be fatal!***
   Connect the welding machine to the power supply according to applicable local regulations.
   Do not touch live electrical parts or electrodes with bare skin, gloves or wet clothing.
   Isolate yourself from exposed power, electrical ground and any bare metal of the work piece.
   Make certain machine and work piece are grounded to earth per applicable regulations.

2) **FUMES AND GASES - *May be hazardous to your health!*** Adequate ventilation must be provided and/or a fume extraction system preventing fumes build-up in the work area.

3) **ARC RAYS - *May injure the eyes & burn skin! Eye & skin protection must be worn!***
   Protect your eyes with #5 DIN (min.) filtered lenses and protect your body with appropriate safety garments when welding. Protect others by installing adequate shields or curtains.

4) **RISK OF FIRE AND BURNS - *Sparks may cause fires and burn the skin!*** Be certain there are no flammable materials in the area and wear appropriate protective garments.

5) **NOISE -** This machine does not directly produce noise exceeding 80dB; however, Users must take all precautions required by local codes or laws in the event local regulations are below this level.

6) **PACEMAKERS -** The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

7) **EXPLOSIONS -** Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes. All cylinders and pressure regulators used in welding operations should be handled with care.

8) **ELECTROMAGNETIC COMPATIBILITY -** This machine is manufactured in compliance with the instructions contained in the harmonized standard，**and must be used solely for professional purposes in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in non- industrial environments.**

IN CASE OF MISUNDERSTANDING OR MALFUNCTIONS, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL OR CONTACT TECH SUPPORT 1- 888-677-3798

UNI-9700 Dual Spotter Deluxe Product Description

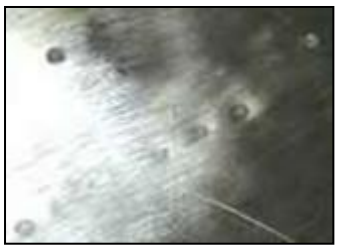
The UNI-9700 Dual Spotter Deluxe is a hand-held capacitor discharge stud welder designed for use welding pulling attachments onto aluminum and or steel panels. The system is designed for welding 4 mm & 6 mm aluminum pulling studs, 2.2 mm & 2.6 mm steel pulling studs and steel Uni-Tab pulling tabs. Stud welding time is in the range of 3/1000 sec. to 6/1000 sec. The power can be set fine enough to allow for welding tabs or studs to a steel panel without burning the coating on the back side of the panel.

The welder consists of a 115 volt power supply and a light weight stud gun connected by a 15' cord. The unit will come with 2 ground pins recognized by their red sleeves use for aluminum welding and a single long ground pin for use on steel.

ATTENTION

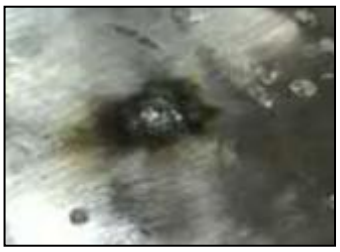
Capacitive discharge welders are sensitive to good connections. It is **VERY IMPORTANT** to be sure that all surfaces are bare of all coatings, corrosion and grease. All welding studs and attachments must be clean and corrosion free.

Examples of different welding quality affected by different contact level:



Good contact

Poor contact



Bad contact

Note:

1) Be sure the panel surface is clean of all coatings, corrosion and greases.
2) Be sure the copper ground pins are clean of all corrosion or contaminations.
3) Be sure pressure is applied to the stud gun forcing good contact at both the ground pins and the welding studs or other welding attachments before the welding operation. Good contact is essential to create a good strong weld.

POWER ADJUSTMENT:

1) For Aluminum stud welding, start with the power setting at 27 and adjust up or down as required. Do not adjust more than 3 Volts at a time on the power meter before retesting.
2) For Steel stud welding, start with the power setting at 22 and adjust up or down as required. Do not adjust more than 3 Volts at a time on the power meter before retesting.

NOTE:

Do not frequently adjust the welding power setting over a wide range in a short period of time. Frequent wide range power adjustment could result in DAMAGE to the control circuit of the welder!

1-1. Attention to Set-Up

(1) Confirm the input voltage of 115V. Incorrect input voltage will damage the welder.
(2) Turn power switch "OFF" when the welder is not in use.
(3) Turn power switch "OFF" when connecting or removing the cables of the welder.
(4) Power switch must be "OFF" and unit unplugged for 5 minutes before any welder maintenance or repair to insure capacitors have completely discharged any stored power.
(5) The inside diameter of stud collet must “match” the welding stud diameter. Do not use a worn stud collet. A tight fit between the collet and the welding stud is required for a good weld. If the stud is loose in the collet, it will result in melting the stud surface.
(6) Stud welding may cause welding arc and slight metal spatter so protective safety garments and eye protection goggles are required at all times.
(7) Be sure there are no flammable materials in the work area.
(8) The welder must use specific stud and pulling attachments which fit the welder collets and welding tip adapters properly. It is suggested to use Uni-Spotter replacement accessories. Improper fit will result in damage to the welder.
(9) Contact the manufacturer in the event of mechanical failure. Do not modify the torch cable length or modify the standard welder in any way.

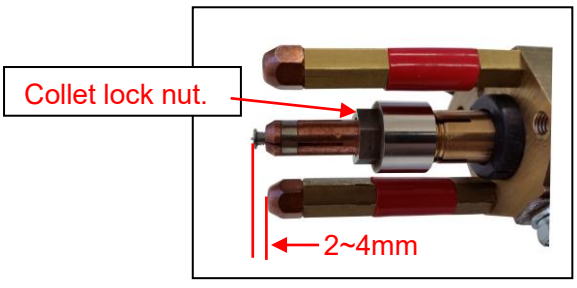
2-1. Stud welding.

2-1-1. Aluminum stud welding

The stud collet transfers the welding current to the threaded welding stud so it is important to make sure the diameter of the collet matches the diameter of stud and that the stud extends 2 mm. beyond the end of the collet. The head of the stud must extend 2-4 mm beyond the tips of the ground pins (see below). The stud must fit tightly into the collet. When the diameter of the collet does not match the diameter of the stud, the stud and collet will be damaged during any welding process.

Adjusting Collet for correct Stud Head Height in Collet

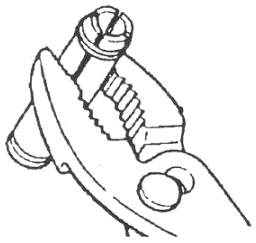
Turn adjusting screw in and out to set stud height. Tighten Lock Nut. The stud should extend 2 mm past the end of the collet.



Install the 2 ground pins with the red sleeves into opposite corners of the mounting plate on the head of the welder. Welding aluminum requires grounding pins on opposite sides of the welding process.
Insert the collet into the collet holder. The large flat surface of the tip of the stud should extend 2~4mm past the tips of the ground pins. Snug up the collet lock nut. DO NOT OVER TIGHTEN LOCK NUT.

2-1-2 Adjusting Collet for fit onto studs

During normal use, the collet will wear and loosen up on the welding studs. This can be corrected by gently squeezing the jaws of the collet together using a pair of pliers or alternative source of controlled pressure. DO NOT HIT WITH A HAMMER. Only squeeze the collet enough to make solid contact on all 4 sides with the welding stud. The stud should be able to be pushed into the collet using mild force.
This insures the collet and the welding stud make good contact.



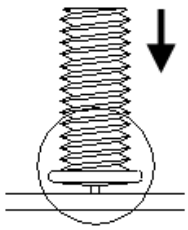
The groove in the collet will expand with use causing the stud to lose contact with collet.
Using pliers to gently squeeze the collet can extend life of the collet.

2-1-3 Welding Procedure

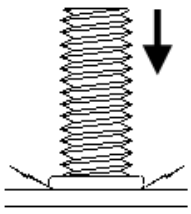
Confirm the stud is properly positioned in the welder. Set the power level at 27 to start. Press the welder down on to the panel surface with both ground pins making good contact. The spring in the welder will collapse allowing the stud and collet to retract into the welder. The spring is calibrated to apply the correct pressure to push the stud into the panel during the welding process.

Make sure the panel is smooth and clean. Press the trigger. The capacitors will discharge creating a loud noise, welding the stud to the panel surface. Check the stud weld for strength. If the weld is not strong enough, adjust the power setting up 3 volts on the meter and repeat the test.

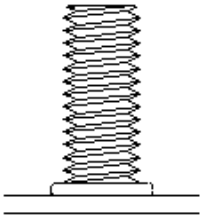
DO NOT REPEATEDLY ADJUST THE POWER SETTING UP AND THEN DOWN. THIS COULD RESULT IN DAMAGE TO THE CONTROL CIRCUIT IN THE WELDER.
DO NOT LOOK AT THE WELDING PROCESS. LOOKING AT THE WELD COULD RESULT IN EYE INJURY. ALWAYS WEAR PROPER EYE AND SKIN PROTECTION.



1. Place the stud with the nipple pressed to the panel surface.



2. Pull the trigger, the electric discharge will start the arc.



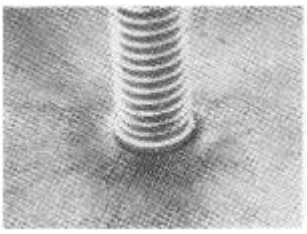
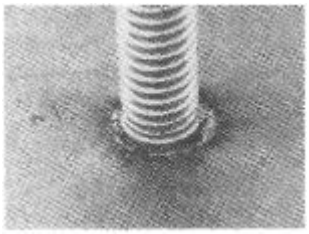
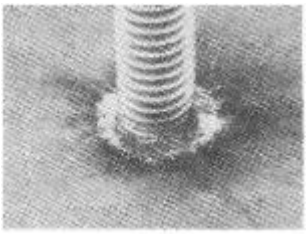
3. The stud will fuse into the panel surface. Weld is complete.

2-1-4. Stud welding visual test

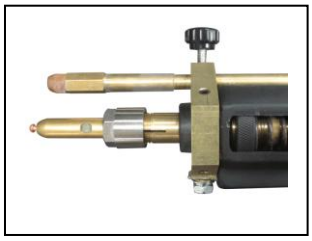
Please refer to the following pictures to assess the stud welding results.

If the stud welding results are not good. Please refer to Part 2-1-3 and adjust the charge voltage, torch head pressure or torch head height, as directed.

(Note: only adjust one parameter at a time.)

1. Voltage too low	2. Correct voltage	3. Voltage too high
		
The stud is fully on the surface	The head of the stud is half melted into the panel	The head of the stud has completely melted away.

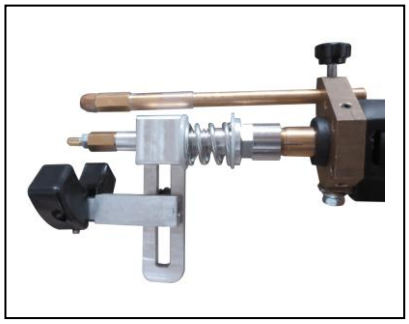
2-2-1. Steel stud welding



Refer to the picture.

- Insert the correct stud collet to match the size of the stud being welded or the Uni-Tab Welding Tip into the welder collet and snug up the collet nut. DO NOT OVER TIGHTEN.
- Insert the single long ground pin into the base plate on the welder using the screw knob to set the pin height. The head of the stud or the pull tab should extend 2~4 mm past the tip of the ground pin.
- Set the power setting at 22 to start. Adjust after a test weld if more or less power is required. Do not adjust the power setting more than 3 volts at a time.
- Make sure the panel is clean and free of any coatings, corrosion or greases.
- Push the stud and the ground pin firmly onto the panel surface and squeeze the trigger. You should only require a minimum amount of power to weld the stud firmly to the panel.
- The welder can be set to weld a stud or a Uni-Tab to the front side of a panel without burning the coating on the back side of the panel reducing extra recoating on the back of the panel.
- Lift the welder directly up away from the weld. Pulling the welder sideways will result in bending the stud or tab and weakening the weld.

2-2-2. Dent Stick Pulling Adapter



Refer to the picture:
The Dent Stick Dent Pulling Adapter is a unique pulling adapter fitted to this welder. By welding the Dent Stick Adapter to the panel surface, the welder can be used to quickly and easily remove small damage from a steel panel.
Note: This adapter is not designed to be used on aluminum panels.

- Insert the Dent Stick Adapter into the collet of the welder and snug up the collet nut. DO NOT OVER TIGHTEN.
- Insert the single long ground pin into the base plate on the welder using the screw knob to set the pin height. The head of the weld tip should extend 2~4 mm past the tip of the ground pin.
- Set the power setting at 18 to start. Adjust after a test weld if more or less power is required. Do not adjust the power setting more than 3 volts at a time.
- Make sure the panel is clean and free of any coatings, corrosion or greases.
- Push the weld tip of the Dent Stick Adapter and the ground pin firmly onto the panel surface and squeeze the trigger. You should only require a minimum amount of power to weld the tip firmly to the panel.
- Lightly lever the welder against the pry foot of the Dent Stick to pull up the panel surface. Do not over pull. The pry foot can be adjusted to match the desired pull. The height can be adjusted up or down by turning the foot around the weld tip. The foot can be moved in and out as required.
- When the pull is complete, rotate the welder 90° around the weld tip to break it free of the panel.
- Reset the welder position and repeat the pulling procedure as often as required to remove the dent.
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CAUTION: The Dent Stick Adapter is designed to be used on small dents or finishing work only. It is not designed for large damage repair. Over welding and over pulling could result in damage to the welding tip, the panel or the welder.

3-1. Trouble Shooting Stud Welding

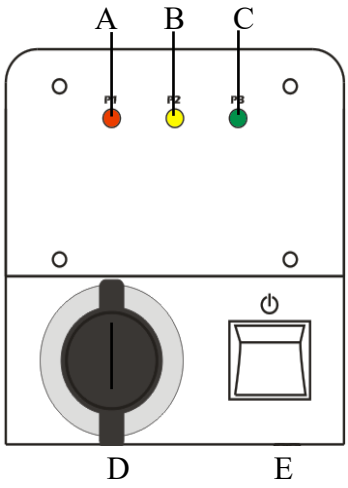
Please be aware of the following circumstances which could lead to stud welding problems.

(1) The ground pins and the panel surface are not getting a good connection.
(2) The diameter of collet and welding stud are not the same size or the collet is loose from wear. The collet must grip the stud tightly. A loose connection between the stud and the collet will damage the stud and result in a poor weld.
(3) The panel is not properly cleaned of coatings or corrosion or is contaminated with a grease or oil.
(4) The stud material is not suitable for the panel, example, a steel stud on aluminum panel or an aluminum stud on a steel panel.
(5) The welding studs or tabs and the panel surface are not getting a good connection.
(6) The stud welding voltage is not correct.
(7) The welder is moved during the welding process. Be sure the ground pin and the welding stud maintain a steady contact throughout the welding process.
(8) The stud to ground pin height is not properly set. Always be sure that the stud or welding tab extends 2-4 mm past the end of the ground pins. When pressed to the panel surface, the stud or tab will retract into the welder to put the appropriate pressure onto the stud to set the stud during the weld process.

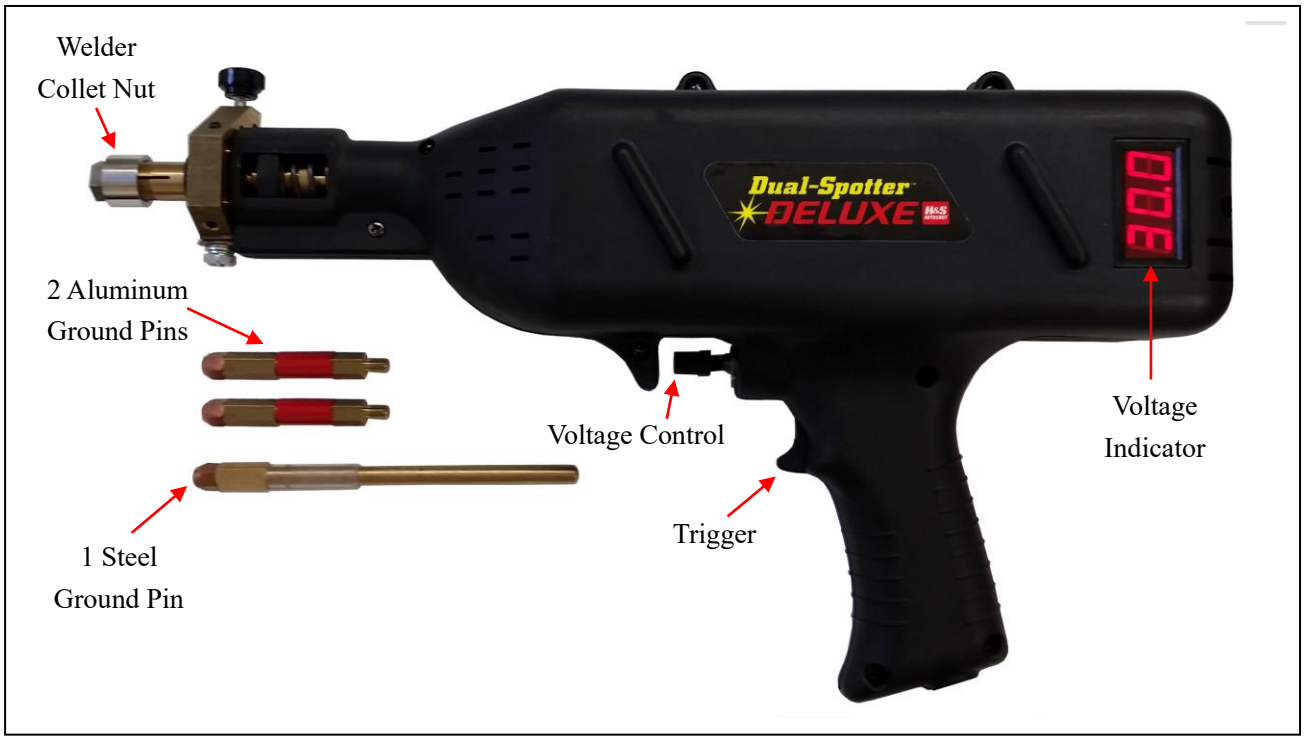
Electrical Information

Note: Make sure the input voltage is single phase 115 VAC. Incorrect input voltage will damage the power supply.

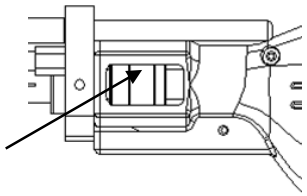
4-1. Description of Controls



A --- 30V power indicator (normally light on).
B --- 20V power indicator (normally light on).
C --- 20V power indicator (normally light on).
D --- 6 pin cable socket for the gun cord.
E --- Power switch
F --- Main Fuse (10 Amp)
G ---Input Power Cord (115VAC)



5-1. Adjust the Collet Pressure



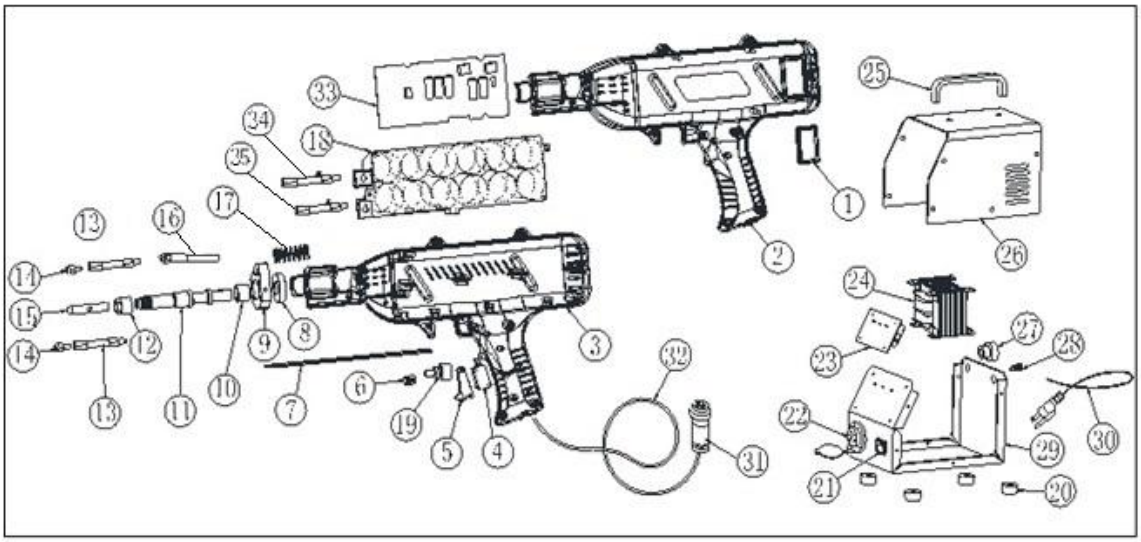
←reduce pressure, →increase pressure

The Collet spring pressure comes preset from the factory but can be adjusted if required.
The adjustment collar is located in the head of the welder behind the ground pin mounting base plate. Turning the collard forward will reduce the pressure. Turning the collard inward will increase the pressure.

6-1. Trouble shooting

P1, P2, P3 indicator lights on the power supply are not lit.	1) Check the power supply. 2) Check the input cable. 3) Check the main switch. 4) There is a failure. Please contact the manufacturer.
Voltage meter display ".000", when the welder is turned on.	1) Adjust the voltage control knob on the Welder. 2) Restart the Welder. 3) Trigger on and off several times. 4) There is a failure. Please contact to the manufacturer.
P1 indicator light is not lit.	1) Check the power supply, 2) Check the input cable. 3) Check the main switch. 4) Over heat protection, wait for welder to cool and restart.
Sparks while steel stud welding.	1) Check the ground pin for good connection. 2) Check the work panel for oxidation or dirt. 3) Lower power setting. 4) Increase pressure on ground pins & studs when welding.
The stud did not weld properly. It can be easily pulled off of the panel.	1) Check Stud height adjustment. Stud head should be 2-4 mm past the head of the ground pin. 2) Check the ground pin is making good connection. 3) Check the work panel for oxidation or dirt. 4) Increase output voltage.
The stud burns through the panel.	1) Reduce output voltage. 2) Check the work panel for oxidation or contamination. 3) Adjust the gun, reduce pressure.
No output, when the trigger is pulled.	1) Check P1, P2, P3 indicator lights. All lights should be on. 2) Check the off/on switch. 3) Check the power supply to the welder. 4) Check the welding stud and the ground pin have good connection to the panel. 5) There is a failure. Please contact to the manufacturer.

7.1 Parts List



UNI-9700 Dual-Spot Stud Gun Parts List

POS.	ITEM NO.	DESCRIPTION
1	BA093130-2B	digital meter
2	QT081110-1	top cover for gun
3	QT081100-1	bottom cover for gun
4	597N5712	trigger swtich
5	597N5720	trigger
6	597N5721	knob
7	SB091150	insulation sheet
8	QT081120	adjust wheel
9	597N9729	earth bar holder
10	QT081145	shaft sleeve
11	UNI-9727	shaft
12	UNI-9728	nut for collet
13	UNI-9718	earth extension Al
14	UNI-9717	earth tip
15	UNI-9804	M4 collet
16	UNI-9719	earth extension Fe
17	UNI-9731	pressure spring
18	597N5713	capacitor PCB

POS.	ITEM NO.	DESCRIPTION
19	RA061000	potentiometer
20	SG081100	plastic foot
21	530.002	power switch
22	JG071500	6-pin socket
23	PD072400	charger power board
24	VC100610	charger transformer
25	530.0018	handle
26	EY11242S0101R1	top cover
27	707.0172	cable strain relief
28	597N5913	fuser holder
29	EY11242X0102B1	bottom cover
30	707.0121	power cable
31	Included 597N5730	6-pin plug
32	597N5730	gun cable
33	597N5710	control PCB
34	112.0100	(+) braided cable 160mm
35	112.0101	(-) braided cable 130mm

8.1 Wiring Diagram