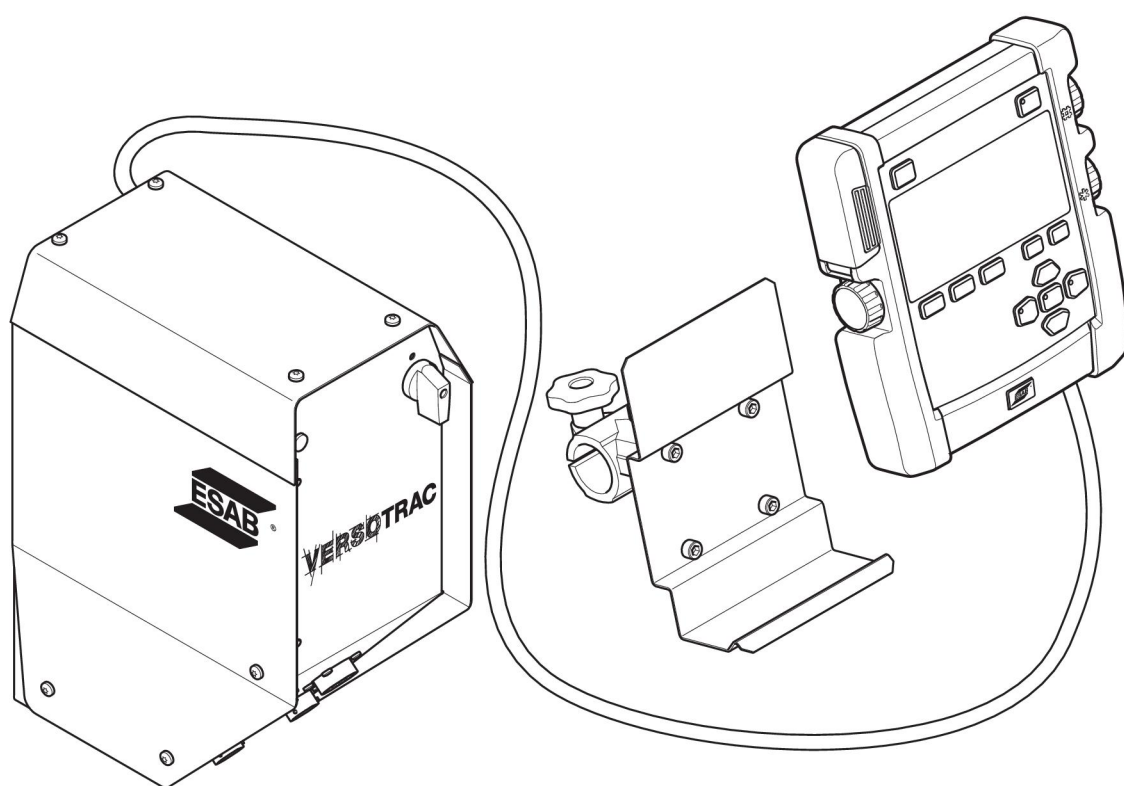


EAC 10 Control unit



Instruction manual



EU DECLARATION OF CONFORMITY

According to
The Low Voltage Directive 2014/35/EU, entering into force 20 April 2016
The EMC Directive 2014/30/EU, entering into force 20 April 2016
The RoHS Directive 2011/65/EU, entering into force 2 January 2013

Type of equipment

Submerged arc welding tractor control unit

Type designation

EAC10 valid from serial number: 905 xxx xxxx.

Brand name or trademark

ESAB

Manufacturer or his authorised representative established within the EEA**Name, address, and telephone No:**

ESAB AB
Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden
Phone: +46 31 50 90 00, www.esab.com

The following harmonised standard in force within the EEA has been used in the design:

EN 60974-1:2012, Arc Welding Equipment – Part 1: Welding power sources
EN 60974-10:2014, Arc Welding Equipment – Part 10: Electromagnetic compatibility (EMC) requirements

Additional Information:

Restrictive use, Class A equipment, intended for use in location other than residential.

By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.

Date	Signature	Position
Gothenburg		
2019-12-20	Peter Kjällström	Automation Equipment Director

CE 2019

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1 SAFETY

1.1 Meaning of symbols

As used throughout this manual: Means Attention! Be Alert!

**DANGER!**

Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

**WARNING!**

Means potential hazards which could result in personal injury or loss of life.

**CAUTION!**

Means hazards which could result in minor personal injury.

**WARNING!**

Before use, read and understand the instruction manual and follow all labels, employer's safety practices and Safety Data Sheets (SDSs).



1.2 Safety precautions

Users of ESAB equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the equipment must be familiar with:
 - its operation
 - location of emergency stops
 - its function
 - relevant safety precautions
 - welding and cutting or other applicable operation of the equipment
2. The operator must ensure that:
 - no unauthorised person is stationed within the working area of the equipment when it is started up
 - no-one is unprotected when the arc is struck or work is started with the equipment
3. The workplace must:
 - be suitable for the purpose
 - be free from drafts

4. Personal safety equipment:
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
 - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns
5. General precautions:
 - Make sure the return cable is connected securely
 - Work on high voltage equipment **may only be carried out by a qualified electrician**
 - Appropriate fire extinguishing equipment must be clearly marked and close at hand
 - Lubrication and maintenance must **not** be carried out on the equipment during operation

**WARNING!**

Arc welding and cutting can be injurious to yourself and others. Take precautions when welding and cutting.

**ELECTRIC SHOCK - Can kill**

- Install and ground the unit in accordance with instruction manual.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from work and ground.
- Ensure your working position is safe

**ELECTRIC AND MAGNETIC FIELDS - Can be dangerous to health**

- Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
- Exposure to EMF may have other health effects which are unknown.
- Welders should use the following procedures to minimize exposure to EMF:
 - Route the electrode and work cables together on the same side of your body. Secure them with tape when possible. Do not place your body between the torch and work cables. Never coil the torch or work cable around your body. Keep welding power source and cables as far away from your body as possible.
 - Connect the work cable to the workpiece as close as possible to the area being welded.

**FUMES AND GASES - Can be dangerous to health**

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to take fumes and gases away from your breathing zone and the general area.

**ARC RAYS - Can injure eyes and burn skin**

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

**NOISE - Excessive noise can damage hearing**

Protect your ears. Use earmuffs or other hearing protection.

MOVING PARTS - Can cause injuries



- Keep all doors, panels and covers closed and securely in place. Have only qualified people remove covers for maintenance and troubleshooting as necessary. Reinstall panels or covers and close doors when service is finished and before starting engine.



- Stop engine before installing or connecting unit.
- Keep hands, hair, loose clothing and tools away from moving parts.

FIRE HAZARD



- Sparks (spatter) can cause fire. Make sure that there are no inflammable materials nearby.
- Do not use on closed containers.

MALFUNCTION - Call for expert assistance in the event of malfunction.

PROTECT YOURSELF AND OTHERS!



CAUTION!

This product is solely intended for arc welding.



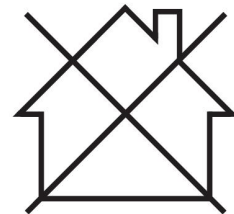
WARNING!

Do not use the power source for thawing frozen pipes.



CAUTION!

Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility of class A equipment in those locations, due to conducted as well as radiated disturbances.



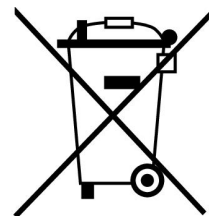
NOTE!

Dispose of electronic equipment at the recycling facility!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.



ESAB has an assortment of welding accessories and personal protection equipment for purchase. For ordering information contact your local ESAB dealer or visit us on our website.

2 INTRODUCTION

EAC 10 is a control unit intended for submerged arc welding (SAW) and for gas metal arc welding (GMAW). The control unit is included in Versotrac EWT 1000 and can be used to control automated welding equipment, for example welding portals, column and booms. The control unit can be used with the following ESAB CAN based power sources: LAF, TAF and Aristo® 1000.

For information about the control panel EAC 10 features, refer to the control panel instruction manual.

For general information about operation, see the instruction manuals for the power source.

ESAB accessories for the product can be found in the "ACCESSORIES" chapter of this manual.

2.1 Equipment

EAC 10 can be connected to ESAB CAN based (digital) and compatible analogue based power sources. EAC 10 control unit consists of:

- Motor drive unit – contains control electronics to drive the wire feed and carrier motors.
- Control pendant – provides a user interface to select the desired settings.

The control unit is supplied with:

- A control pendant holder with screws
- An instruction manual for the control unit
- An instruction manual for the control panel

A USB memory is available as accessory, see the "ACCESSORIES" chapter of this manual.

Instruction manuals in other languages can be downloaded from the Internet: www.esab.com

3 TECHNICAL DATA

EAC 10, from serial no. 841-xxx-xxxx and 905-xxx-xxxx	
Supply voltage	60 V DC or 42 V AC, 50/60 Hz
Supply voltage to control pendant	12 V DC
Power requirement	Max 900 VA
Motor connections adapted for ESAB motors	6 A 100%
Speed control	Feedback from pulse encoder
Operating temperature	-10 to +40 °C (-14 to +104 °F)
Storage temperature	-20 to +55 °C (-4 to +131 °F)
Relative air humidity	Max 95%
Dimensions l×w×h	
EAC 10, complete control unit	275×300×165 mm (10.8×11.8×6.5 in.)
EAC 10 control pendant	245×225×50 mm (9.7×8.9×2.0 in.)
Weight	
EAC 10, complete control unit	6.8 kg (15 lb)
EAC 10 control pendant	1.25 kg (2.8 lb)
Enclosure class	IP23

4 INSTALLATION

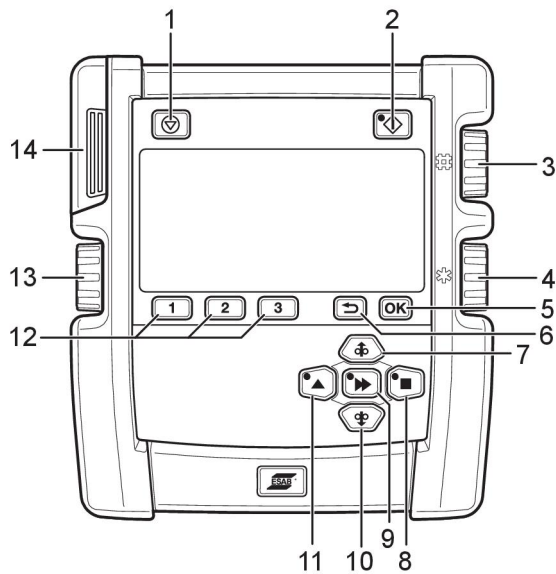
The installation must be executed by a professional.

5 OPERATION

General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual and the "SAFETY" chapter of the manual for the power source. Read it through before you start using the equipment!

5.1 Control pendant

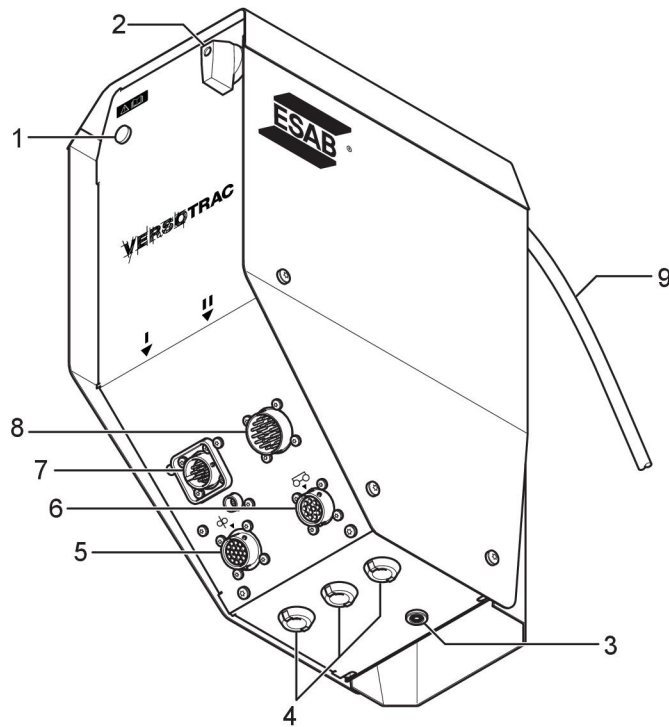
See separate instruction manual for description of the features of the control panel.



- | | |
|-----------------------------------------------|------------------------------------|
| 1. Welding stop | 8. Manual travel motion direction |
| 2. Welding start | 9. Fast motion |
| 3. Welding current / Wire feed speed/balance* | 10. Manual wire feed downwards |
| 4. Arc voltage / Offset voltage* | 11. Manual travel motion direction |
| 5. OK / Setting menu | 12. Memory 1, 2, 3 / Soft keys |
| 6. Back | 13. Travel speed / frequency* |
| 7. Manual wire feed upwards | 14. USB connection |

*Only with Aristo® 1000 in AC mode.

5.2 Connections



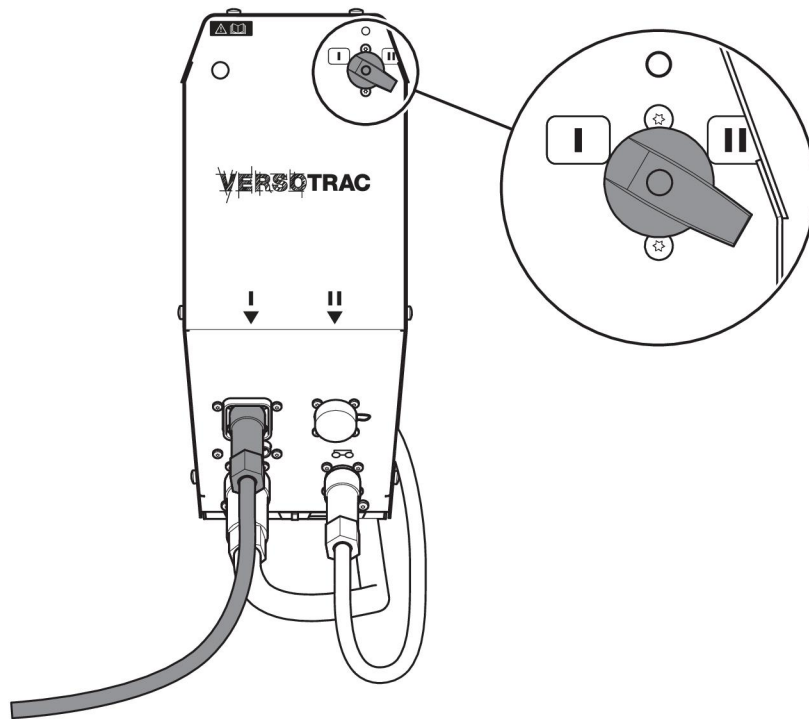
- | | |
|--------------------------------------------------|-------------------------------------|
| 1. On/Off indicator | 6. Connection tractor carriage |
| 2. On/Off switch | 7. Connection digital power source |
| 3. Connection work piece voltage reference brush | 8. Connection analogue power source |
| 4. Accessory cable entries | 9. Cable to control pendant |
| 5. Connection welding head | |



NOTE!

Connect only digital power source **or** analogue power source at a time.

5.2.1 Connecting to digital power source



Connect the interconnection cable to connector marked with I.

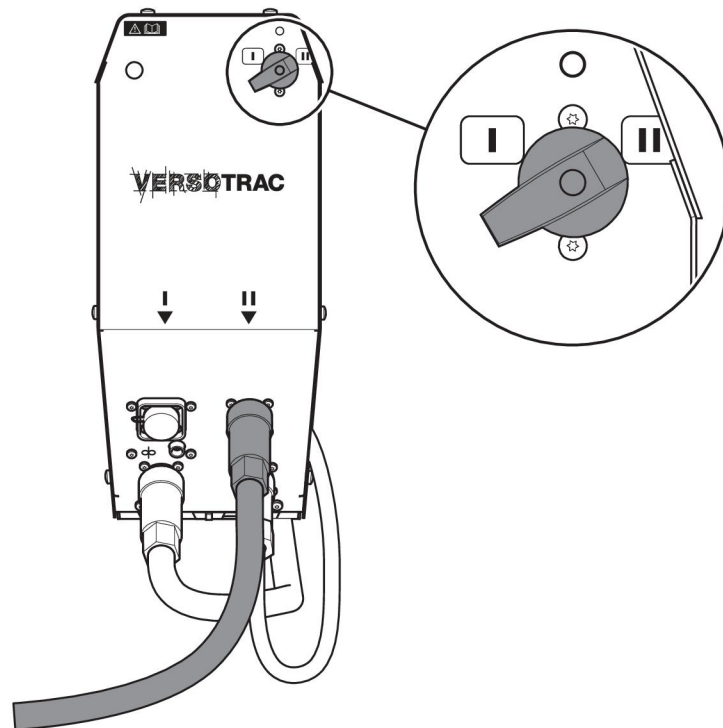
Interconnection cable between CAN based ESAB power source and EAC 10 are available as accessories in different lengths.

ESAB CAN based power sources are LAF xxx1, TAF xxx1 and Aristo® 1000.

For further information about connecting welding power source, see separate instruction manual.

Always use the dust cover on the connections where no cable is connected.

5.2.2 Connecting to compatible DC analogue power source



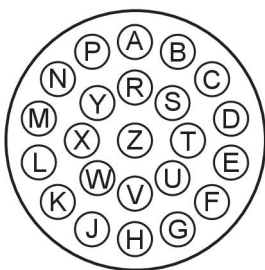
Connect the interconnection cable to connector marked with **II**.

Interconnection cable between analogue based ESAB power source and EAC 10 control unit are available as accessories in different lengths.

Always use the dust cover on the connections where no cable is connected.

Requirements on the analogue power source

- Supply voltage 60 V DC or 42 V AC, 50/60 Hz from welding power source or by external means.
- Voltage feedback from negative welding terminal (for welding voltage measurement for display in pendant).
- Start input to initiate welding, analogue input (0–10 V DC) for setting welding parameter (control signal).
- 1000 A/60 mV shunt output for welding current measurement.



Power source connection socket XP2 pinouts	
B, C	42 V AC
E, F	42 V AC return
J	Power source negative terminal (U-)
W	Power source positive terminal (U+)

Power source connection socket XP2 pinouts	
X	Arc voltage from welding head
K	Power source start
L	0 V, common for power source start and reference
M	0-10 V reference
N	Current shunt negative (-mV)
P	Current shunt positive (+mV)
R	Emergency stop
Y	Emergency stop
S	24 V AC / trigger input. For non-ESAB power sources.
T	Contact closure to pin S / trigger common. For non-ESAB power sources.
U	Reserved for future use.

To connect EAC 10 with non-ESAB SAW analogue power source, an analogue power source interface box and control cables are available as accessories.

See chapter "ACCESSORIES".

5.3 USB connection

The external USB memory can be used to transfer programs to and from the control panel.

The USB memory must be formatted as FAT 32 in order to work. During normal use there is no risk of viruses being able to infect the equipment.



NOTE!

The USB memory used with this equipment shall not be used for any other purpose.

Certain USB memories may not work with this equipment. Use a USB memory from a reputable supplier.



NOTE!

ESAB assumes no responsibility for any damage caused as a consequence of incorrect use of the USB memory.

5.3.1 Insert the USB memory

- Turn off the main switch of the power source.
- Open the cover on the left-hand end of the control panel (14).
- Insert the USB memory in the USB connector.
- Close the cover.
- Turn on the power source's main switch.



6 MAINTENANCE

Regular maintenance is important for safe, reliable operation.

Maintenance may only be carried out by an authorised technician. Only personnel with the appropriate electrical skills (authorised staff) may remove safety plates.



CAUTION!

All warranty undertakings from the supplier cease to apply if the customer attempts any work to rectify any faults in the product during the warranty period.

6.1 Inspection and cleaning

Check regularly that the control unit is not clogged with dirt.

How often and which cleaning methods apply depend on:

- welding process
- arc time
- location of the unit
- surrounding environment

Usually it will be sufficient to blow the unit clean once a year, using dry compressed air (reduced pressure).

7 ORDERING SPARE PARTS



CAUTION!

Repair and electrical work should be performed by an authorised ESAB service technician. Use only ESAB original spare and wear parts.

EAC 10 is designed and tested in accordance with the international and European standards **EN 60974-1** and **EN 60974-10**. On completion of service or repair work, it is the responsibility of the person(s) performing the work to ensure that the product still complies with the requirements of the above standards.

Spare parts and wear parts can be ordered through your nearest ESAB dealer, see esab.com. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

DIAGRAM

Component	Description
1AP1	MMC module
1AP2	Display
1AP3	Buttons, rubber keypad
24AP1	Analogue interface board
26AP1	Motor control board
26AP2	Motor driver board
1L1, 26L1, X1L1	Ferrite ring cores
H1	On/off indicator
BR1	Rectifier bridge
C2	Filter capacitor
S1	Power switch
X1	Terminal block
XP1	Connector for digital power source
XP2	Connector for analogue power source
XP3	Connector for carrier
XP4	Connector for weld head
XP5	Connector for work piece voltage reference

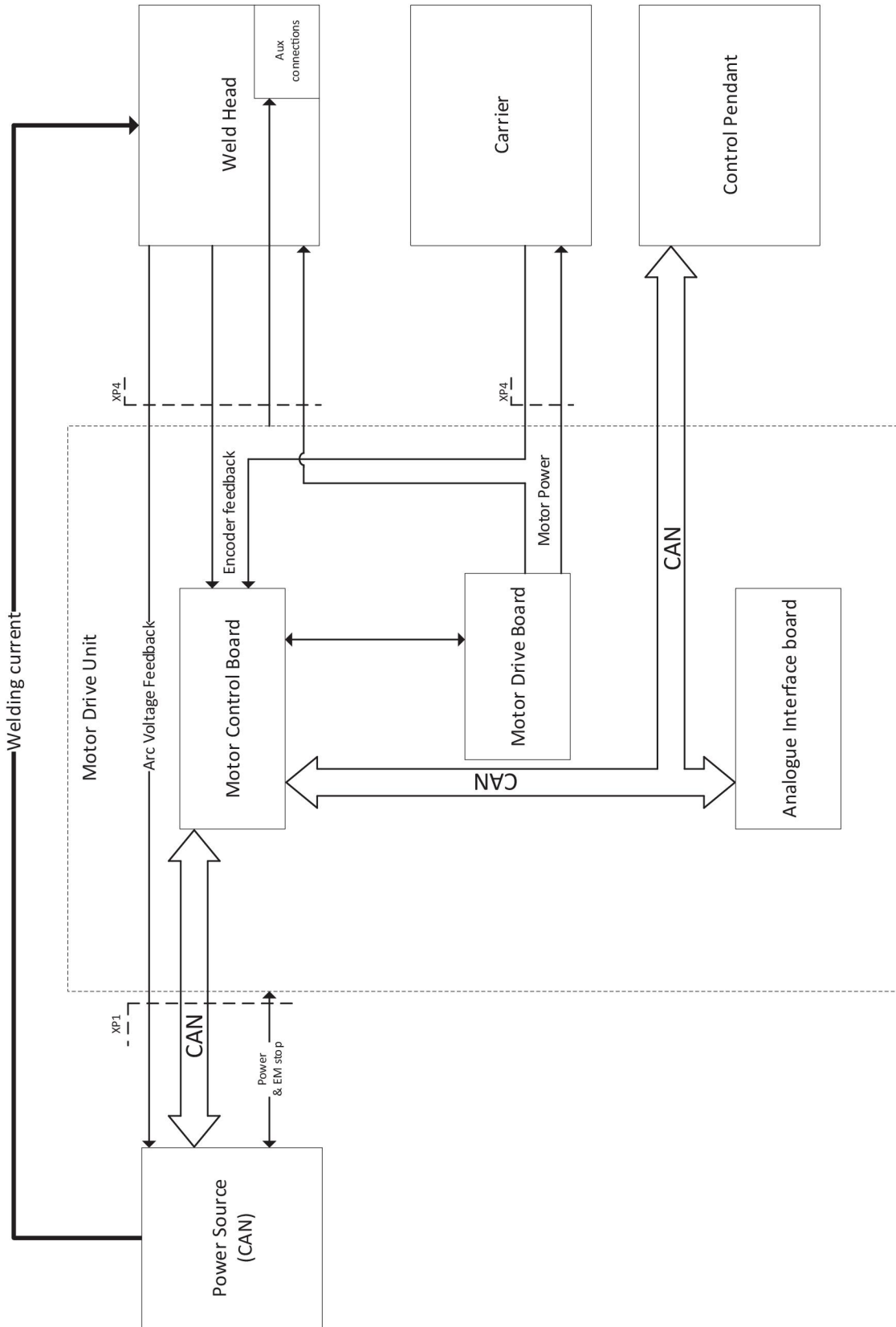
**CAUTION!**

STATIC ELECTRICITY can damage circuit boards and electronic components.

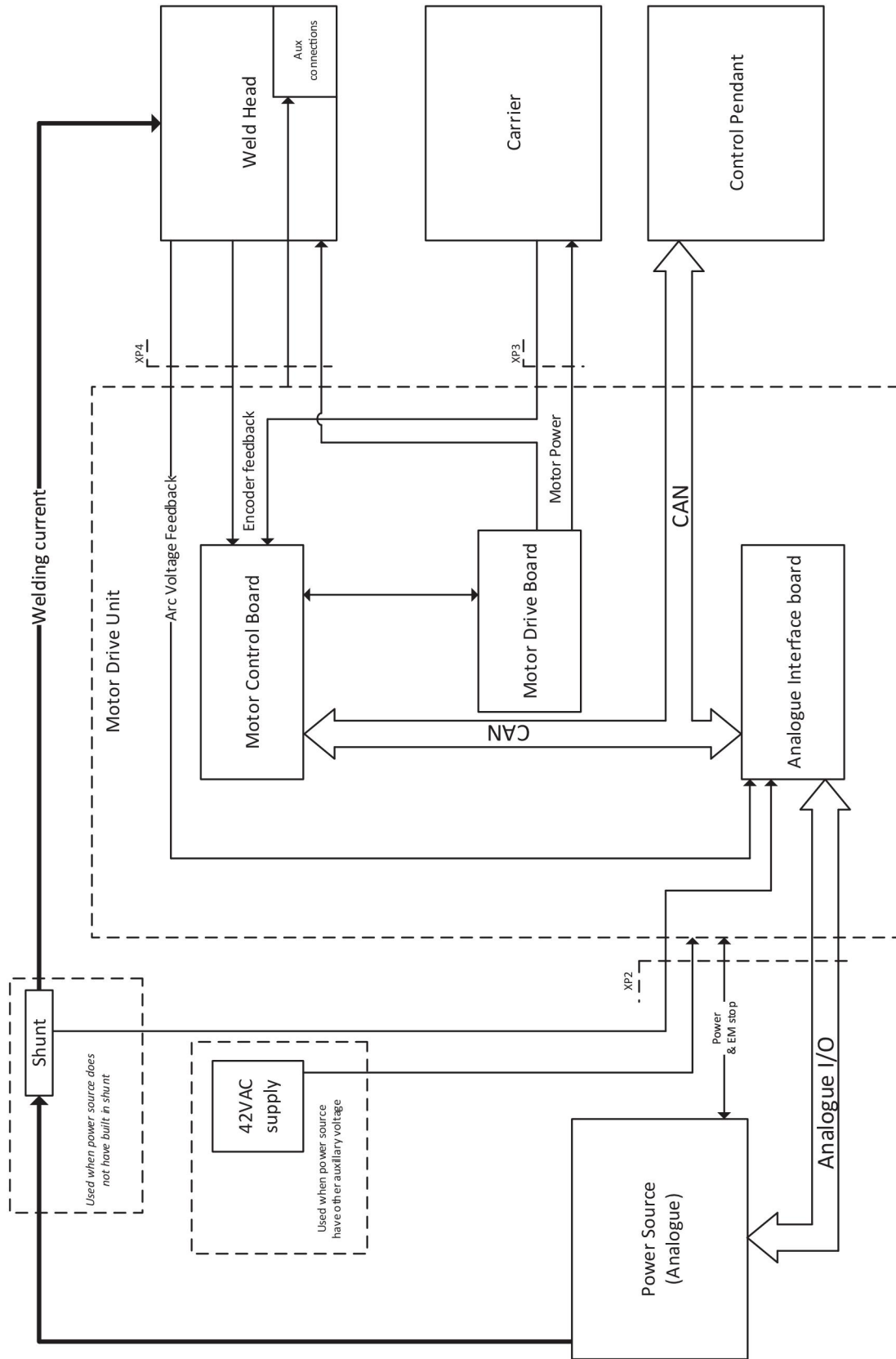
- Observe precautions for handling electrostatic sensitive devices.
- Use proper static-proof bags and boxes.

**ESD**

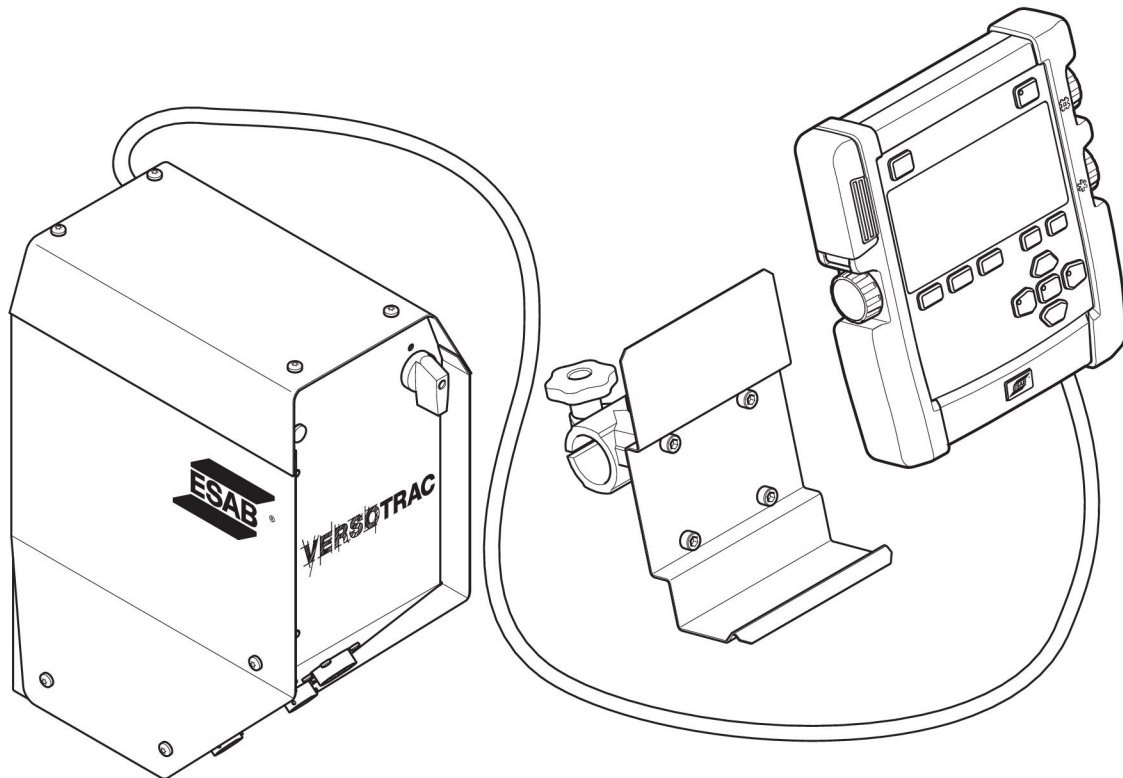
Digital power source



Analogue power source



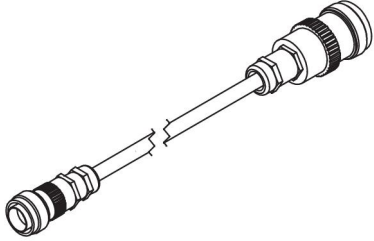
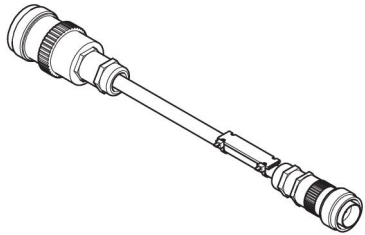
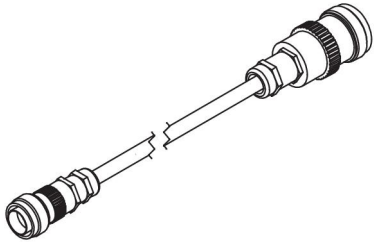
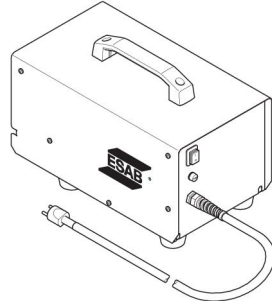

ORDERING NUMBERS

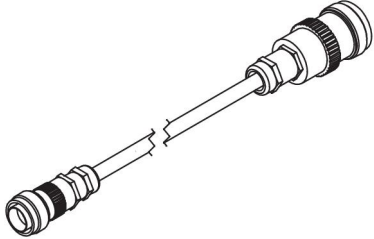
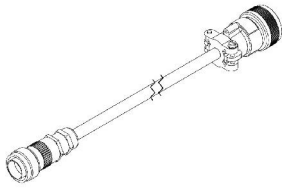
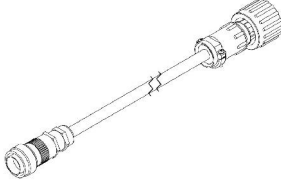
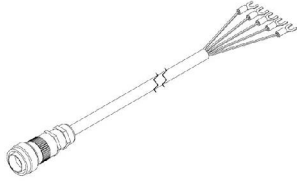


Ordering number	Denomination	Type	Notes
0446 225 880	Control unit	EAC 10	
0463 612 *	Control panel, instruction manual		
0463 611 001	Spare parts list		

Technical documentation is available on the Internet at: www.esab.com

ACCESSORIES

EAC 10		
Control cable EAC 10 - digital power source		
0460 910 880	5 m (16 ft)	
0460 910 881	15 m (49 ft)	
0460 910 882	25 m (82 ft)	
0460 910 883	35 m (115 ft)	
0460 910 884	50 m (164 ft)	
0460 910 885	75 m (246 ft)	
0460 910 886	100 m (328 ft)	
Control cable EAC 10 - digital power source and work piece voltage reference brush		
0446 146 880	5 m (16 ft)	
0446 146 881	15 m (49 ft)	
0446 146 882	25 m (82 ft)	
0446 146 883	35 m (115 ft)	
0446 146 884	50 m (164 ft)	
0446 146 885	75 m (246 ft)	
Control cable EAC 10 - ESAB analogue power source		
0449 500 880	15 m (49 ft)	
0449 500 881	25 m (82 ft)	
0449 500 882	35 m (115 ft)	
0449 500 883	50 m (164 ft)	
0449 500 884	75 m (246 ft)	
0449 500 885	100 m (328 ft)	
Welding power source interface, for non-ESAB analogue SAW power source		
0446 180 880	115 V version	
0446 180 881	230 V version	
0462 062 001	USB Memory stick 2 Gb	

Welding power source interface		
Control cable EAC 10 - Welding power source interface		
0446 179 880	15 m (49 ft)	
0446 179 881	25 m (82 ft)	
0446 179 882	35 m (115 ft)	
0446 179 883	50 m (164 ft)	
0446 179 884	75 m (246 ft)	
0446 179 885	100 m (328 ft)	
Control cable for welding power source interface - general analogue controlled power source		
0446 157 880	Cable with 14-pin MS3106 20-27PX plug Suitable for power sources: <ul style="list-style-type: none"> • Lincoln Flextec 650/650x • Lincoln DC 600 • Lincoln DC 655 	
0446 156 880	Control cable 14-pin, CPC type Suitable for power sources: <ul style="list-style-type: none"> • Miller dimension 650, 652, 452 	
0446 178 880	Control cable, terminal block Suitable for power sources: <ul style="list-style-type: none"> • Miller SubArc DC 650, 800, 1000, 1250 • Lincoln DC 1000 	



A WORLD OF PRODUCTS AND SOLUTIONS.



For contact information visit esab.com

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<http://manuals.esab.com>

