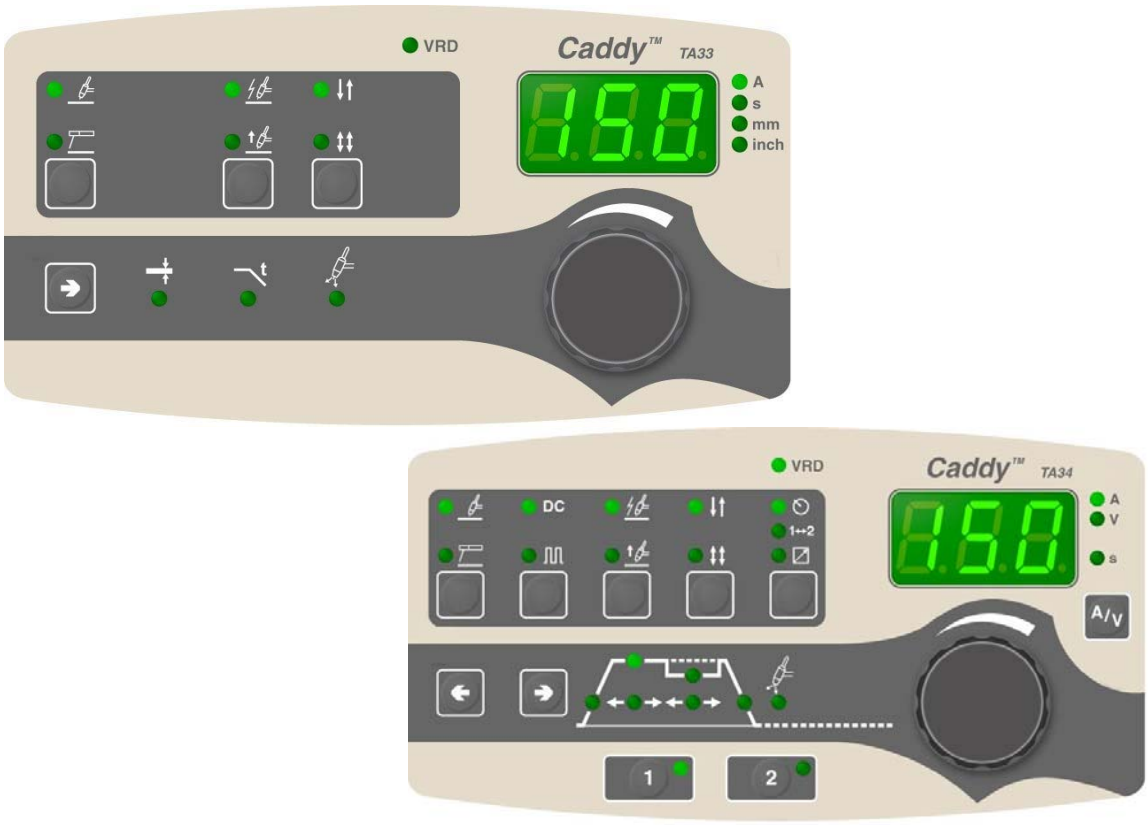
GB

ESAB®

# Caddy®

# TA33, TA34




## Instruction manual

0460 447 074 GB 20120322 Valid from program version 1.03

GB

# 1 INTRODUCTION

The manual describes the use of **TA33, TA34** control panel.

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

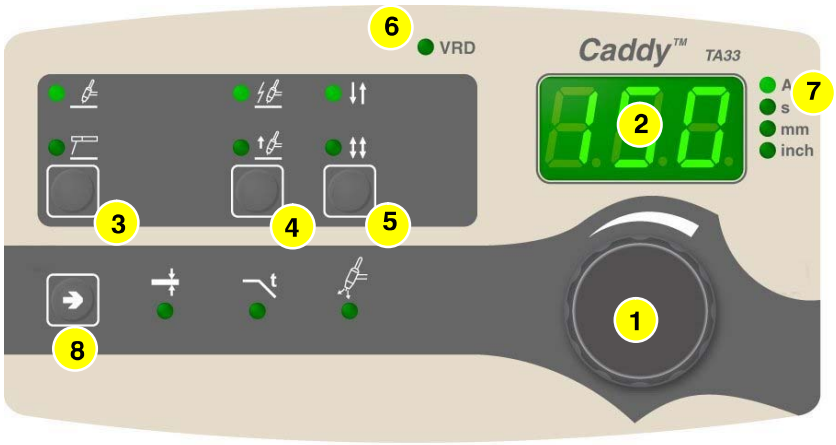
When mains power is supplied the unit runs a self diagnosis of the LEDs and the display, the program version is displayed and in this example the program version is 0.18.

***NOTE!*** *Differences in the panel function may occur, depending on in which product it is installed.*

Instruction manuals in other languages can be downloaded from the website, www.esab.com.

## 1.1 Control panel

*Control panel* ***TA33***




1. Knob for setting data (current (A), time (s) or material thickness (mm/inch))
2. Display
3. Choice of welding method TIG or MMA
4. Choice of selection of HF start or LiftArc™ start
5. Choice of 2-stroke or 4-stroke
6. Display of VRD function (*reduced open-circuit voltage*) is active or inactive.
   *NOTE! This function works for power sources where it is implemented.*
7. Indication of which parameter is shown in the display, current (A), time (s) or material thickness (mm/inch)

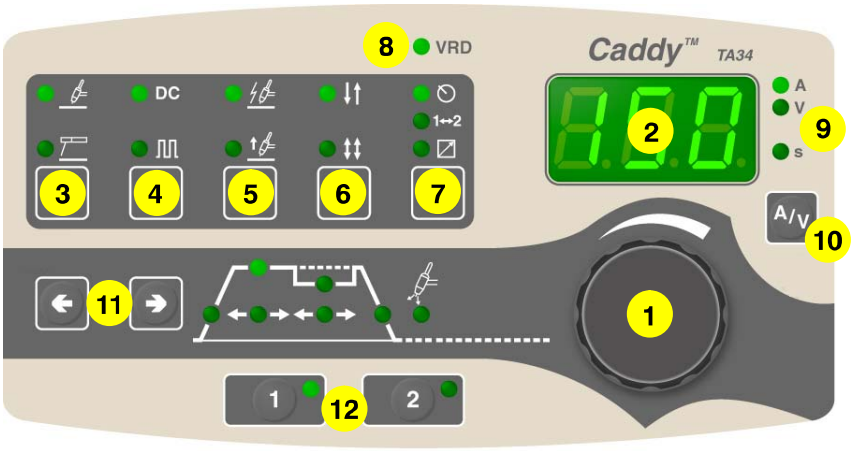
**8** Choice for selection of setting parameter,

material thickness , slope down or gas post flow .

*Note! The pushbutton is also used for hidden functions, see page 10.*

Measured value in the display for welding current A, is arithmetic average value = rectified average value.

*Control panel* ***TA34***




**1** Knob for setting of current (A) or time (s)

**2** Display

**3** Choice of welding method TIG eller MMA

**4** Choice of TIG- / MMA-welding with direct current DC(-) or TIG-welding with pulsed current

**5** Choice of HF start or LiftArc™

**6** Choice of 2-stroke or 4-stroke

**7** Setting from panel , welding data change with torch trigger switch 1↔2 or connecting remote control unit

**8** Display of VRD-function (reduced open-circuit voltage) is active or inactive.
*(NOTE! This functions works for power sources where it is implemented)*

**9** Indication of which parameter is shown in the display current (A), voltage (V), time (s)

**10** Display of measurement value for current (A) or voltage (V) during welding

**11** Indication of selected setting parameter, see page 6.
*The right-hand button is also used for hidden functions, see page 10 and 12.*

**12** Buttons for weld data memory settings, see page 13.

Measured value in the display for arc voltage V, and welding current A, is arithmetic average value = rectified average value.

# 2 TIG WELDING

## 2.1 Settings

| Function | Setting range | TA33 | TA34 | Default value |
|---|---|---|---|---|
| HF / LiftArc ™ 2) | HF or LiftArc™ | x | x | LiftArc™ |
| 2/4-stroke 2) | 2 stroke or 4 stroke | x | x | 2 stroke |
| Gas pre flow time 1) | 0 - 5 s | x | x | 0,5 s |
| Slope up-time 1) | 0 - 10 s | x | x | 0,0 s |
| Slope down time | 0 - 10 s | x | x | 1,0 s |
| Gas post flow time | 0 - 25 s | x | x | 10,0 s |
| Current | 4 - max 3) | x | x | 60 A |
| Active panel | OFF or ON | - | x | ON |
| Changing trigger data | OFF or ON | - | x | OFF |
| Remote control unit | OFF or ON | - | x | OFF |
| Min current 1) | 0-99% | - | x | 0 % |
| Pulse current | 4 - max 3) | x | x | 60 A |
| Pulse time<br>Micro pulse 1) | 0.01 - 2.5 s<br>0.001 - 0.250 s | - | x | 1,0 s |
| Background current | 4 - max 3) | - | x | 20 A |
| Background time<br>Micro pulse 1) | 0.01 - 2.5 s<br>0.001 - 0.250 s | - | x | 1,0 s |
| Material thickness 3) | 30 A/mm in step of 0.1 mm | x | - | |
| VRD | | - | - | |
| Unit of measurement 1) | 0 = inch, 1 = mm | x | - | 1 |

1) *These functions are hidden Tig functions, see description point 2.3.*
2) *These functions cannot be changed while welding is in progress*
3) *The setting range is depended on the power source used.*

## 2.2 Symbol and Function explanations


**VRD (Voltage Reducing Device)**

The VRD function ensures that the open-circuit voltage does not exceed 35 V when welding is not being carried out. This is indicated by a lit VRD LED.

The VRD function is blocked when the system senses that welding has started.

If the VRD function is activated and the open-circuit voltage exceeds the 35 V limit, this is indicated by an error message (16) appearing in the display and welding cannot be started whilst the error message is displayed.

Contact an authorised ESAB service technician to activate the function.

**TIG welding**

TIG welding melts the metal of the workpiece, using an arc struck from a tungsten electrode, which does not melt itself. The weld pool and the electrode are protected by shielding gas.


**Direct current**

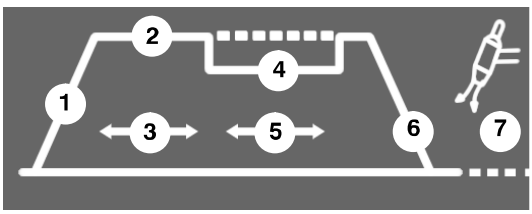
A higher current gives a wider weld pool, with better penetration into the workpiece.

**Pulsed current**

Pulsing is used for improved control of the weld pool and the solidification process. The pulse frequency is set so slow that the weld pool has time to solidify at least partially between each pulse. In order to set pulsing, four parameters are required: pulse current, pulse time, background current and background time.

**Parameter settings**

1. Slope up
2. Welding current
3. Pulse time
4. Background current
5. Background time
6. Slope down
7. Gas post flow time

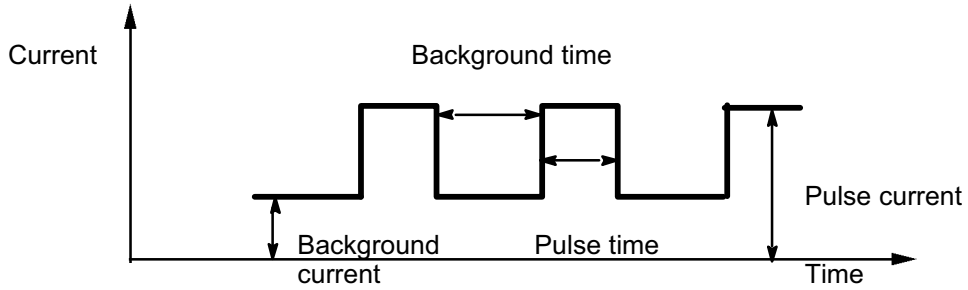



**Slope up**

The slope up function means that, when the TIG arc strikes, the current rises slowly to the set value. This provides `gentler' heating of the electrode, and gives the welder a chance to position the electrode properly before the set welding current is reached.

**Pulse current**

The higher of the two current values in the event of pulsed current.




*TIG welding with pulsing.*

**Pulse time**

The time the pulse current is *on* during a pulse period.

**Background current**

The lower of the two current values in the event of pulsed current.

**Background time**

Time for background current which, along with the time for pulse current, gives the pulse period.

**Slope down**

TIG welding uses “slope down”, by which the current falls 'slowly' over a controlled time, to avoid craters and/or cracks, when a weld is finished.

**Gas post-flow**

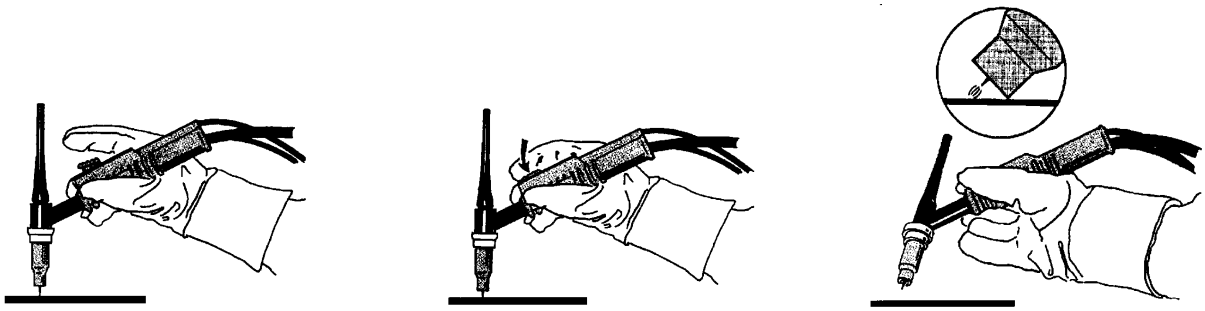
This controls the time during which shielding gas flows after the arc is extinguished.

**HF start**

The HF start function strikes the arc by means of a spark from the electrode to the workpiece as the electrode is brought closer to the workpiece.

## LiftArc™

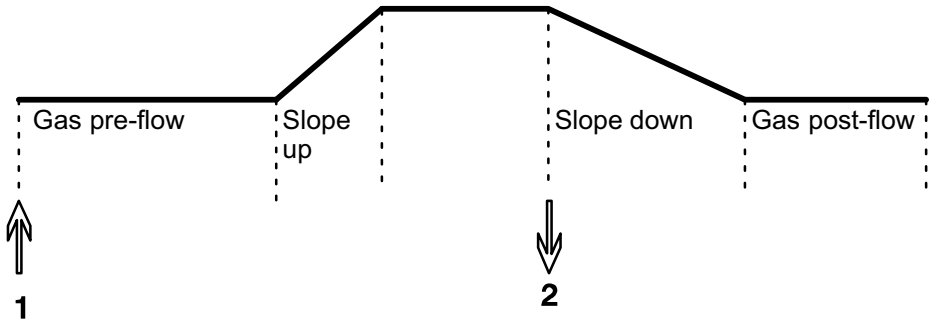
The LiftArc™ function strikes the arc when the electrode is brought into contact with the workpiece and then lifted away from it.



*Striking the arc with the LiftArc function ™. Step 1: the electrode is touched on to the workpiece. Step 2: the trigger switch is pressed, and a low current starts to flow. Step 3: the welder lifts the electrode from the workpiece: the arc strikes, and the current rises automatically to the set value.*

## 2-stroke

With 2-stroke gas pre-flow (if used) starts when the welding gun trigger switch is pressed. The welding process then starts. Releasing the trigger switch stops welding entirely and starts gas post-flow (if selected).

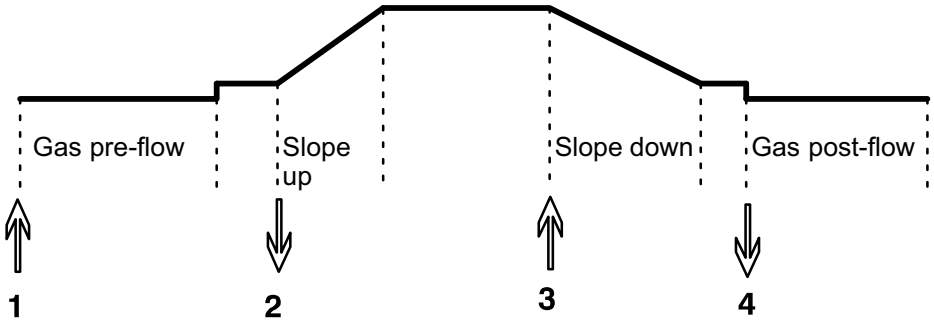



*Functions when using 2 stroke control of the welding torch.*

In the 2 stroke control mode, pressing the TIG torch trigger switch (1) starts gas pre-flow (if used) and strikes the arc. The current rises to the set value (as controlled by the slope up function, if in operation). Releasing the trigger switch (2) reduces the current (or starts slope down if in operation) and extinguishes the arc. Gas post-flow follows if it is in operation.

## 4-stroke

With 4 stroke, the gas pre-flow starts when the welding gun trigger switch is pressed in and the arc is struck when it is released. The welding process continues until the switch is pressed in again, the arc is extinguished when the switch is released the gas post flow starts (if selected).




*Functions when using 4 stroke control of the welding torch.*

In the 4 stroke control mode, pressing the trigger switch (1) starts gas pre-flow (if used). At the end of the gas pre-flow time, the current rises to the pilot current (a few ampere), and the arc is struck. Releasing the trigger switch (2) increases the current to the set value (with slope up, if in use). When the trigger switch is pressed in (3) the current returns to the set pilot current (with ”slope down” if in use). When the trigger switch is released again (4) the arc is extinguished and any gas post flow occurs.

## Material thickness

The current is set automatically due to material thickness (mm/inch).

To increase or decrease the current, push on  until the symbols for material thickness, slope down and gas post flow no longer are active and set the current.

## Gas post-flow

This controls the time during which shielding gas flows after the arc is extinguished.

## Active panel

Settings are made from the control panel.

## Changing trigger data

This function permits changing between different welding data memories by a double press on the trigger of the welding gun. *Only applies for TIG welding.*

### Remote control unit

Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the machine before activation. When the remote control unit is activated the panel is inactive.

## 2.3 Hidden TIG functions

There are hidden functions in the control panel.

To access the functions, press  for 5 seconds. The display shows a letter and a value. Select function by pressing the right arrow. The knob is used to change the value of the selected function.

To leave hidden functions, press  for 5 seconds.

**Control panel TA33**

| Function | Settings |
|---|---|
| **A** = gas pre-flow | 0 - 5 s |
| **b** = slope up | 0 - 9.9 s |
| **C** = Unit of measurement | 0 = inch, 1 = mm |

**Control panel TA34**

| Function | Settings |
|---|---|
| **A** = gas pre-flow | 0 - 5 s |
| **b** = micro pulse | 0 = OFF; 1 = ON |
| **I** = min current | 0 - 99% |

### Gas pre-flow

This controls the time during which shielding gas flows before the arc is struck.

### Slope up

The slope up function means that, when the TIG arc strikes, the current rises slowly to the set value. This provides `gentler' heating of the electrode, and gives the welder a chance to position the electrode properly before the set welding current is reached.

### Unit of measurement

0 = inch/min, 1 = mm/min, Default value = 1

**Micro pulse**

In order to select micro pulse, the machine must be in the pulsed current function . The value for pulse time and background current is normally 0.01 – 2.50 seconds. By using the micro pulse, the time can go down to 0.001 seconds. When the micro pulse function is active, times that are shorter than 0.25 seconds are shown in the display without decimal points.

**Min current**

Used to set the minimum current for the remote control.

If the max current is 100 A and the min current is to be 50 A, set the concealed function min current to 50%.

If the max current is 100 A and the min current is to be 90 A, set the min current to 90%.

This function also applies when setting background current with pulsed TIG.

# 3 MMA WELDING

## 3.1 Settings

| Function | Setting range | TA33 | TA34 | Default value |
|---|---|---|---|---|
| Current | 16 - max. A [2)] | x | x | 100 A |
| Hotstart [1)] | 0 - 99 | x | x | 0 |
| Arc force [1)] | 0 - 99 | x | x | 5 |
| Drop welding [1)] | 0=OFF or 1=ON | x | x | OFF |
| Welding regulator ArcPlus™ [1)] | 1=OFF or 0=ON | x | x | ON |
| Active panel | OFF or ON | x | x | ON |
| Remote control unit | OFF or ON | - | x | OFF |
| Min current [1)] | 0-99% | - | x | 0 % |
| VRD | - | | | - |

[1)] *These functions are hidden functions, see description point 3.3.*
[2)] *The setting range is dependent on the power source used.*

## 3.2 Symbol and Function explanations


**VRD (Voltage Reducing Device)**

The VRD function ensures that the open-circuit voltage does not exceed 35 V when welding is not being carried out. This is indicated by a lit VRD LED.

The VRD function is blocked when the system senses that welding has started.

If the VRD function is activated and the open-circuit voltage exceeds the 35 V limit, this is indicated by an error message (16) appearing in the display and welding cannot be started whilst the error message is displayed.

Contact an authorised ESAB service technician to activate the function.

**MMA welding**

MMA welding may also be referred to as welding with coated electrodes. Striking the arc melts the electrode, and its coating forms protective slag.

**Active panel**

Settings are made from the control panel.

**Remote control unit**

Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the machine before activation. When the remote control unit is activated the panel is inactive.

## 3.3 Hidden MMA functions

There are hidden functions in the control panel.

To access the functions, press  for 5 seconds. The display shows a letter and a value. Select function by pressing the right arrow. The knob is used to change the value of the selected function.

To leave hidden functions, press  for 5 seconds.

**Control panel TA33**

| Function | Settings |
|---|---|
| **C** = Arc Force | 0 - 99% |
| **d** = drop welding | **0** = OFF; **1** = ON |
| **F** = welding regulator type ArcPlus™ | **1** = ArcPlus™ II; **0** = ArcPlus™ |
| **H** = Hotstart | 0 - 99% |

**Control panel TA34**

| Function | Settings |
|---|---|
| **C** = Arc Force | 0 - 99% |
| **d** = drop welding | **0** = OFF; **1** = ON |
| **F** = welding regulator type ArcPlus™ | **1** = ArcPlus™ II; **0** = ArcPlus™ |
| **H** = Hotstart | 0 - 99% |
| **I** = min current | 0 - 99% |

**Arc force**

The arc force is important in determining how the current changes in response to a change in the arc length. A lower value gives a calmer arc with less spatter.

**Drop welding**

Drop welding can be used when welding with stainless electrodes. The function involves alternately striking and extinguishing the arc in order to achieve better control of the supply of heat. The electrode needs only to be raised slightly to extinguish the arc.

**Welding regulator**

Welding regulator is a type of control that produces a more intense, more concentrated and calmer arc. It recovers more quickly after a spot short-circuit, which reduces the risk of the electrode becoming stuck.

- Arc Plus™ (0) recommended for basic type of electrodes
- Arc Plus™ II (1) recommended for rutile and cellulosa typ of electrodes

**Hot start**

Hot start increases the weld current for an adjustable time at the start of welding, thus reducing the risk of poor fusion at the beginning of the joint.

**Min current**

Used to set the minimum current for the remote control.

If the max current is 100 A and the min current is to be 50 A, set the concealed function min current to 50%.

If the max current is 100 A and the min current is to be 90 A, set the min current to 90%.

# 4 WELDING DATA MEMORY

Two different welding data settings can be stored in the control panel memory.

Press button 

or 

for 5 seconds to store the welding data in the memory. The welding data is stored when the green indicator lamp starts to flash.

To switch between the different welding data memories press button 

or 

.

The welding data memory has a back-up battery so that the settings remain even if the machine has been switched off.

# 5 FAULT CODES

The fault code is used to indicate that a fault has occurred in the equipment. It is indicated in the display by an E followed by a fault code number.

A unit number is displayed to indicate which unit has generated the fault.

Fault code numbers and unit numbers are shown alternately.

If several faults have been detected only the code for the last occurring fault is displayed. Press any function button or turn the knob to remove the fault indication from the display.

NOTE! If the remote control is activated, deactivate the remote control by pressing

 to remove the fault indication.

## 5.1 List of fault codes

**U 0** = welding data unit
**U 1** = cooling unit
**U 2** = power source
**U 4** = remote control unit

## 5.2 Fault code descriptions

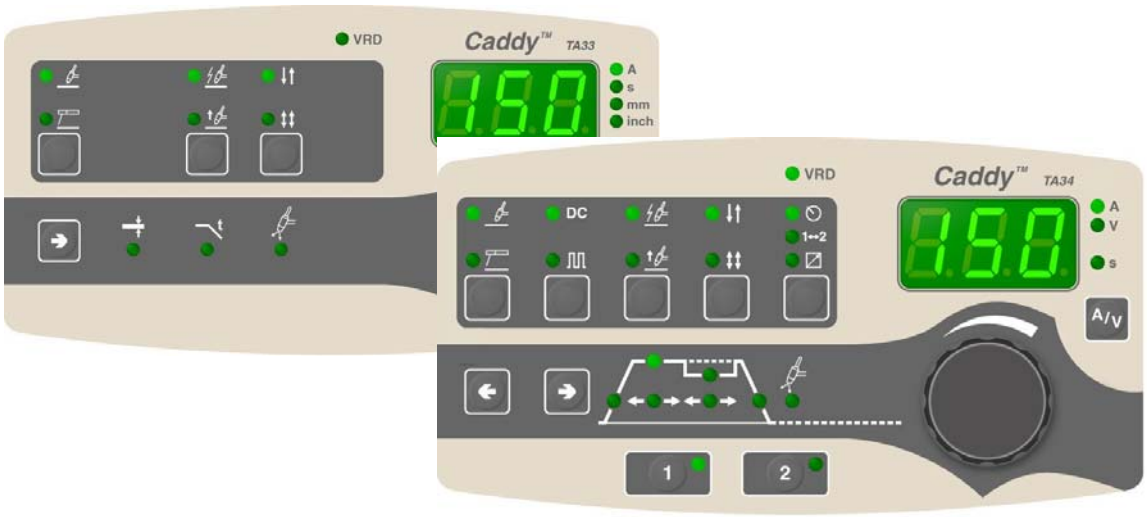
Below are described event codes at which the user himself can take corrective action. If any other code is shown, send for a service technician.

| Fault code | Description |
|---|---|
| **E 6**<br>**E7** | **High temperature**<br>The thermal overload cut-out has tripped.<br>The current welding process is stopped and cannot be restarted until the temperature has fallen.<br>**Action:** Check that the cooling air inlets or outlets are not blocked or clogged with dirt. Check the duty cycle being used, to make sure that the equipment is not being overloaded. |
| **E 14** | **Communication error (bus off)**<br>Serious interference on the CAN bus.<br>**Action:** Check that there are no faulty units connected on the CAN bus. Check the cables. Send for a service technician if the fault persists. |
| **E 16** | **High open-circuit voltage VRD**<br>Open circuit voltage has been too high.<br>**Action:** Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists. |
| **E 29** | **No cooling water flow**<br>The flow monitor switch has tripped.<br>The current welding process is stopped and starting is prevented.<br>**Action:** Check the cooling water circuit and the pump. |
| **E 41** | **Lost contact with the cooling unit**<br>The welding data unit has lost contact with the cooling unit. The welding process stops.<br>**Action:** Check the wiring. If the fault persists, send for a service technician. |

# 6 ORDERING SPARE PARTS

Spare parts may be ordered through your nearest ESAB dealer, see the last page of this publication.

## Order number




| Ordering no. | Denomination |
|---|---|
| 0460 250 882 | Control panel Caddy™ TA34 |
| 0460 250 886 | Control panel Caddy™ TA33 |
| 0460 447 070 | Instruction manual SE |
| 0460 447 071 | Instruction manual DK |
| 0460 447 072 | Instruction manual NO |
| 0460 447 073 | Instruction manual FI |
| 0460 447 074 | Instruction manual GB |
| 0460 447 075 | Instruction manual DE |
| 0460 447 076 | Instruction manual FR |
| 0460 447 077 | Instruction manual NL |
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| 0460 447 087 | Instruction manual US |
| 0460 447 089 | Instruction manual EE |
| 0460 447 090 | Instruction manual LV |
| 0460 447 091 | Instruction manual SL |
| 0460 447 092 | Instruction manual LT |
| 0460 447 093 | Instruction manual CN |

Instruction manuals and the spare parts list are available on the Internet at **www.esab.com**

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