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REGARDING THIS DOCUMENTATION

This documentation is written to support the DEP 300s hand-held data entry panel with software Q06905-23

It has been designed for planning, programming, start-up personnel, operators, service technicians, plant operators, line builders and maintenance personnel to assist with procedures related to installing the weld control.

Screen shots of the software application are for illustrative purpose only and may appear different than your specific application.

REVISION HISTORY

<table>
<thead>
<tr>
<th>REVISION</th>
<th>REL. DATE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1/28/11</td>
<td>Initial release of manual M-035030, software Q06905-00-11.</td>
</tr>
<tr>
<td>2.0</td>
<td>6/20/16</td>
<td>Complete update of manual with software version Q96905-23</td>
</tr>
<tr>
<td>2.1</td>
<td>12/19/16</td>
<td>Added note for Back-up and Restore cycle and MS timing. Updated formats.</td>
</tr>
</tbody>
</table>

LANGUAGES AVAILABLE

This documentation was originally published in English. Translations are available in Chinese and Japanese.
SYMBOLS USED IN THIS DOCUMENTATION

In compliance with the CE standard, the following symbols are used to identify safety instructions. Their meaning is as follows:

**Danger:**
This symbol will be used wherever failure to observe safety measures may result in death, severe bodily injury or serious damage to property.

**WARNING:**
This symbol will be used wherever insufficient or lacking compliance with instructions may result in personal injury.

**Caution:**
This symbol denotes when insufficient or lacking compliance with instructions may damage equipment or files.

**NOTE:**
This symbol informs the user about special features, or where to find more information.

This symbol draws attention to specific instructions or product features.

This symbol indicates that only WTC service personnel or WTC repair partners should service or open this device. Breaking a warranty seal will void the warranty of this device.
COMMON TECHNIQUES USED IN THIS MANUAL

The following conventions are used throughout this manual:

- Bulleted lists such as this one provide information, not procedural steps.
- Numbered lists provide sequential steps or hierarchical information.

Italic type is used for emphasis.

WTC SUPPORT - INDUSTRIAL TECHNICAL SERVICES [ITS]

WTC tests all of our products to ensure that they are fully operational when shipped from the manufacturing facility. If you are experiencing installation or startup problems, please review the troubleshooting information contained in this publication. If you need assistance, please contact Customer Support (see the table below); our trained technical specialists are available to help. When emailing please provide a photograph of the serial tag and Hardware Status Screen on the DEP 300s if possible.

If the product is not functioning and needs to be returned, contact your distributor. You must provide a Customer Support case number to your distributor in order to complete the return process.

<table>
<thead>
<tr>
<th>Phone</th>
<th>United States/Canada</th>
<th>1.248.477.3900 Ext: 3020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside United States/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>Worldwide</td>
<td>Go to <a href="http://support.wtc.com">http://support.wtc.com</a></td>
</tr>
</tbody>
</table>

Phone: United States/Canada 1.248.477.3900 Ext: 3020
Outside United States/Canada

Internet: Worldwide Go to http://support.wtc.com
WORKING WITH STATIC-SENSITIVE DEVICES

ESD Costs!
Electrostatic discharge (ESD) can ignite flammable materials and damage electronic components. Static electricity can attract contaminants in clean environments or cause products to stick together. Other costs of ESD-damaged electronic devices are in their replacement and production down time. Associated costs of repair and rework, shipping, labor and overhead can be significant. Reducing losses to ESD and static electricity is an ABSOLUTE NECESSITY.

PERSONNEL GROUNDING
Before touching any Electrostatic Discharge Sensitive (ESDS) devices or circuit boards, put on and wear an Electrostatic Discharge (ESD) wrist strap. Ground this strap through a one megohm (1 MΩ) resistor.

HANDLING OR MOVING ESDS DEVICES
Handle all circuit boards by their edges ONLY. NEVER touch the traces or edge pad connectors.

NOTE:
Use ONLY static-shielding containers for transporting ESDS devices or circuit boards.

WORKSTATION REQUIREMENTS
If diagnostics are required, move the circuit board to an approved ESD workstation. A static-safe workstation must include a grounded ESD mat, wrist strap and cord. The measured static voltage at a workstation MUST NOT exceed 50 volts.

For detailed information about ESD contact:
WTC Industrial Technical Services
Phone: +1 248-477-3900 | Fax: +1 248-477-8897
Email: service@weldtechcorp.com
Website: www.weldtechcorp.com

HOW TO GET HELP AND SUPPORT
For technical support, contact WTC’s Industrial Technical Services department. Please have the following information available:

**Your Contact Information:**
- Company Name
- Phone Number
- Fax Number
- Email Address

**Weld Control Part Number and Serial Number**
- Located on the serial tag on the outside of the cabinet

**Weld Timer and DEP-300 Firmware Revisions**
- The weld timers firmware revision is located in the Display Mode menu.
- The DEP-300s firmware revision is located in the System Settings menu.

**Description of Problem**
- Faults and Alerts
- Mechanical and Electrical Issues
- Weld Quality Issues
NOTES:
Chapter 1: OVERVIEW

DEP 300s

The WTC DEP-300s Data Entry Panel is a portable, hand-held, programming device, used to communicate with WTC weld timers through an EtherNet IP network. It can communicate with up to 30 WTC weld controls through the network.

The DEP-300s allows the user to program weld schedules, set-up parameters and stepper profiles, then download the information to the weld control. It also receives weld data summary uploaded by the weld timer and displays weld results.

When power is applied to the DEP-300s, the Home Menu is displayed, which allows the user to connect to an active weld control via one of three methods:

1. Global EtherNet IP Network
2. Local EtherNet Network or
3. Serial (RS-485) Network

When connected via the Global EtherNet IP network, the DEP-300s polls the network for active devices. Each active device responds with information about itself, which includes IP address, welder ID and status. At this point, the user can select which device to connect to.

This manual provides instruction on the following topics:
- Menu Navigation
- Network Configuration and Connectivity
- Review and Edit Weld Schedules
- Review and Configure Fault and Setup Parameters
- Review and Configure Linear Current Stepper Profiles
- Fault and Stepper Reset
- I/O Mapping and Status

Each weld control functions independently. The data displayed by the DEP 300s for each device varies, based on the software and features.

**NOTE:** Example LCD display images are used in this manual to provide instruction in the use of the DEP-300s. Actual features and parameters viewed on the DEP-300s may vary depending on the customer's application requirements and the firmware loaded into the weld timer. If assistance is required in the use of this product, please contact WTC.
PHYSICAL CONNECTIONS

ON THE WELD TIMER

DEP PORT ON THE CONTROL DOOR
THE FOLLOWING DESCRIBES THE KEY FUNCTIONS OF THE DEP-300S:

**POWER KEY**

This key turns the LCD display either ON or OFF. It does not reboot or recycle power to the DEP. The green LED is illuminated when the LCD display is on.

**FUNCTION KEYS**

The five F-number keys located at the top of the keypad, are used to perform various functions depending upon which menu is currently displayed on the DEP.
EXAMPLE 1:

In the Home Menu above, there are five functions displayed at the bottom of the menu. The user can select any of these five functions by pressing the corresponding function key located on the top row of the keypad.

EXAMPLE 2:

In the Mode Selection Menu above there are also five functions displayed at the bottom of the menu. Although they are different from what was seen in the Home Menu, they are selected by pressing the same five corresponding function keys.
CURSOR MOVEMENT KEYS

The directional arrows keys are used to both move the cursor and scroll through displays.

<table>
<thead>
<tr>
<th>I</th>
<th>S</th>
<th>M</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP, DOWN, LEFT, RIGHT: These keys move the cursor within data fields on the display.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>J</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP-RIGHT, DOWN-RIGHT: These keys scroll up or down through pages on the display.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP-LEFT, DOWN-LEFT: These keys are unassigned and not used.</td>
<td></td>
</tr>
</tbody>
</table>

NUMERIC KEYS

The numeric keys are used to change the numeric parameters of programmable functions and features.

ALPHA KEYS

The alpha keys are used to assign alpha characters to the Welder ID in the Program Mode menu.

**NOTE:** To enter an alpha character, press the `SHIFT` key first, then press the appropriate alpha key(s). Note the shift key will remain locked ON (indicated by the lit green LED) until the shift key is pressed again.
ENTER KEY

This key places a new parameter into the DEP300s memory. The parameter is not changed in the weld timer until it is downloaded.

NOTE: Before pressing the enter key, ensure the key is OFF (indicated by the unlit green LED). Otherwise, a space will be put in the field.

ESC KEY

If a parameter has been changed in a particular field, pressing this key will change the value back to its original value. This is only applicable prior to pressing the Enter key.

NOTE: Before pressing the ESC key, ensure the key is OFF (indicated by the unlit green LED). Otherwise, the data in the field will be deleted.

DELETE KEY

This key is used to delete a parameter within a particular field.

NOTE: To delete a parameter, press the key first. Note the shift key will remain locked ON (indicated by the lit green LED) until the shift key is pressed again.

SPACE KEY

This key is used to insert a space when assigning the Welder ID in the Program Mode menu.

NOTE: To delete a parameter, press the first. Note the Shift key will remain locked ON (indicated by the lit green LED) until the shift key is pressed again.
NEGATIVE KEY

This key is used when a negative number is required in a particular field.

HOT KEYS

The following Hot Keys allow the user one-touch, quick access to commonly viewed menus in the DEP-300s. Once the DEP is connected to a weld timer, the Hot Keys can be used from any menu:

NOTE: Do not press the key prior to pressing the Hot Keys.

Weld Data Screen (In Status Mode menu)

Display Mode menu

Heat Display Screen (In Display Mode menu)

Status Mode menu

Program Mode menu

UNASSIGNED KEYS AND LED INDICATORS

The following keys and LED indicators are unassigned and not used:

LED 1 - LED 5

Positive Key

Asterisk Key

Comma Key

Period Key

At Key
**LCD DISPLAY**

During normal keypad input activity, the back-light to the LCD display is ON. During extended periods of inactivity, the display will go into one of the following three inactivity modes:

<table>
<thead>
<tr>
<th>MODE</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACK-LIGHT DIM</td>
<td>After 10 minutes of inactivity, the back-light will dim.</td>
</tr>
<tr>
<td>SCREEN SAVER MODE</td>
<td>After 20 minutes of inactivity, the display will &quot;blank&quot; and go into screen saver mode.</td>
</tr>
<tr>
<td>BACK-LIGHT OFF</td>
<td>After 40 minutes of inactivity, the back-light will turn off.</td>
</tr>
</tbody>
</table>

**NOTE:** Pressing any key will bring the display back into the active mode.
Chapter 2: HOME MENU

Upon power-up of the DEP-300s, the Home Menu is displayed. The Home Menu allows the user to select the above three options by pressing the corresponding keys as depicted below.
1. SYSTEM SETTINGS

When the System Settings key is pressed in the Home Menu, the following screen is displayed:

**SYSTEM SETTINGS**

This screen allows the user to view and edit the following:

- **MAC ADDRESS:** This address is a fixed value and cannot be changed.
- **IP ADDRESS:** This line shows the unique IP address of the DEP.
- **SUBNET ADDRESS:** This line displays the Subnet information the DEP is connected over.
- **GATEWAY ADDRESS:** Field for the Gateway Address.
- **DHCP:** Set to OFF by default. If DHCP is ON, and you plan to program an address, change the value to OFF.

**NOTE:** To change the settings of the IP Address, Subnet Address and Gateway Address refer to the procedures on page 22.

Connect to the serial network
FUNCTIONS MENU:

Home: returns the user back to the Home Menu.

Download/Reboot: After editing the System Settings, this key allows the user to save the changes to DEP memory and then reboot the DEP for the changes to take effect.

Flash DEP: allows the user to flash the DEP. This is typically only used during special maintenance operations. (See procedure on page 131)

Backup/Restore: allows the user to back-up weld timer schedules, stepper settings, setup settings and other information to DEP flash memory. For more information, see “Backup / Restore” on page 23.
2. NETWORK CONNECTIONS

CHANGING THE IP ADDRESS, SUBNET ADDRESS OR GATEWAY ADDRESS:

① Press \( \text{\textless} \text{\uparrow} \) to navigate to line that will be edited.

② Press numeric keys 0-9 to enter the new value.

③ Press \( \text{ENTER} \) to save the change or the \( \text{ESC} \) key to cancel the change.

④ Repeat the process for any additional fields to be edited.

**NOTE:** After a new numeric value has been entered, the cursor can not be moved off the field until either Enter or ESC has been pressed.

⑤ After the changes have been made, press the DOWNLOAD/REBOOT \( \text{F2} \) key to flash the changes to the DEP and for the altered address to take effect.

The changes will not be saved unless the DEP is re-booted by pressing the DOWNLOAD/REBOOT [F2] key.

CHANGING THE DHCP SETTINGS:

① Press the \( \text{\downarrow} \) key to navigate to the DHCP Field.

② Press \( \text{ENTER} \) to open the drop down menu with options OFF and ON.

③ Move the cursor using \( \text{\downarrow} \text{\uparrow} \) keys to select the ON or OFF position.

④ Press \( \text{ENTER} \) to save the changes or \( \text{ESC} \) to cancel the change.

⑤ After the changes have been made, press \( \text{Download/ \text{F2} Reboot} \), for the changes to take effect.
BACKUP / RESTORE

The Backup / Restore feature allows the user to transfer data files between weld timers. The DEP-300s is capable of uploading and storing three weld timer programs in flash memory and then restoring (downloading) them into other weld timers.

**NOTE:** In order to transfer data from one weld timer to another, both weld timers must have the same firmware program and revision numbers.

**NOTE:** Always configure the weld timer to the desired timing (Cycle/ Ms) prior to performing a restore. For example, Msec data from a weld timer that is being restored to one that was previously configured for cycle timing will not convert to Msec and the values displayed may be erroneous.

**THE FOLLOWING LISTS WHAT WELD TIMER PARAMETERS ARE BACKED-UP AND RESTORED:**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>BACKUP</th>
<th>RESTORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setups</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Schedule</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Steppers</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Stepper Status</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Welder ID</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>FieldBus Options</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>FieldBus Inputs</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>FieldBus Outputs</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Local Ethernet Address</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>EIP Configuration</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>EIP Configuration</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>EIP Inputs</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>EIP Outputs</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>DIO Outputs</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Network Address</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>
CREATING A BACKUP:

To backup data from a weld timer, follow the procedure below.

1. Connect the DEP-300s into the weld timer’s RS-485 serial communications port. For instructions on how to connect the DEP-300s to a weld timer for Serial network communications, see “Physical Connections” on page 11.

From the Home Menu press System Settings.

Press Backup/Restore.
2. Connect to the weld control via the serial network.

3. In the Backup / Restore Menu, press to display the drop-down menu and then using the or arrow keys, select the desired Memory location (1-3) then press .

**NOTE:** If a memory location is selected, which already has a data file stored in it, the old data file will be permanently deleted when the backup process begins. Therefore, verify if the old data file is to be overwritten prior to pressing the BACKUP [F2].

4. Press the or arrow keys to scroll to the Page menu and press to display the drop-down menu with page options 1-3. Using the or arrow keys again, select the backup type - Standard, FieldBus or EIP and press .
PAGE 1 - STANDARD:

By default all 4 standard parameters are selected. To deselect a field, using the movement keys navigate to the parameter not required for backup and press to uncheck the field.

Press to initiate the Backup.

If the DEP successfully connects to the weld timer, the backup sequence will begin automatically. If the DEP does not detect the weld timer on the serial network, the message “No Serial Devices Found” will appear on the screen. If this occurs, ensure the DEP is properly connected to the weld timer and repeat the backup process.

When the restore sequence is complete, the DEP will return to the Backup / Restore Menu and display the software number and weld processor name in the Memory field.

NOTE: Prior to restoring a backed-up data file to another weld timer, the DEP cable must be plugged directly into the serial port of the weld timer that is to be restored.
PAGE 2 - FIELDBUS:

The FieldBus I/O and configuration parameters can be individually selected for back up. Using the movement keys navigate to desired field and press to select. Press to initiate the Backup.

If the DEP successfully connects to the weld timer, the backup sequence will begin automatically. If the DEP does not detect the weld timer on the serial network, the message “No Serial Devices Found” will appear on the screen. If this occurs, ensure the DEP is properly connected to the weld timer and repeat the backup process.

When the restore sequence is complete, the DEP will return to the Backup / Restore Menu.

PAGE 3 - EIP:

The EIP I/O and configuration parameters can be individually selected for back up. Using the movement keys navigate to the desired field and press to select, the press to initiate Backup.
CLEAR A DATA FILE FROM A MEMORY LOCATION:

From the Backup / Restore Menu, press the keys to navigate to the memory location to be cleared and press . Notice that the Memory field will now display “Empty” to indicate that the previous data has been erased.

NOTE: The DEP 300s does NOT Backup/Restore RAFT™ data.
The DEP-300s can connect to a weld timer via three separate networks: Local EtherNet, Global EtherNet and Serial Network.

**LOCAL ETHERNET (F2)**

In the Local EtherNet mode, the DEP is programmed to communicate directly with the “local” weld timer that it is physically connected to. In this mode, the DEP will only communicate to a local timer with an IP Address of 89.89.200.250. For more information, see Changing the Local EtherNet IP Address via the Serial Network.

**NOTE:**
For instructions on how to physically connect the DEP-300s to a weld timer using Local EtherNet communications, see “Physical Connections” on page 11.

1. Press the LOCAL ETHERNET [F2] key. The DEP will attempt to connect to the weld timer.

**NOTE:**
When the LOCAL ETHERNET [F2] key is pressed, the DEP temporarily changes its IP Address to 89.89.200.250. This guarantees communication with the local timer on the network, which has its IP Address set to 89.89.200.250.
Upon completion of the upload, the Mode Selection Menu will appear, indicating that a connection to the weld timer has been established.

When the HOME [F1] key is pressed from the Mode Selection Menu, the following message will appear: “Returning to Home Menu will close communications to the timer Please Confirm”.

Connect to the weld control via the serial network
When CONFIRM [F1] is pressed, the communication between the DEP and the weld timer is closed, the DEP changes its Local IP Address back to the previous setting and the DEP returns to the Home Menu.

GLOBAL ETHERNET (F3)

In the Global EtherNet mode, the DEP-300s is capable of communicating with multiple weld timers on an EtherNet IP network.

NOTE: In order to communicate in Global EtherNet mode, the IP Address and Subnet Mask of the weld timers must be set correctly. This is determined by the plant network administrator. 

NOTE: For instructions on how to physically connect the DEP-300s to a weld timer for Global EtherNet IP communications, see “Physical Connections” on page 11

NOTE: There are two methods for the DEP-300s to establish communications with a weld timer.

NOTE: IP Address set on the Global network will change back to the default 89.89.200.250 when the Local EtherNet key is pressed to communicate with the timer.
METHOD 1:

The DEP 300s sends out a special command to all the devices within the Subnet Mask, which effectively is a request for all WTC weld timers to report to the DEP and confirm they are active and identify their IP Address. When the active timers respond, their IP Address and Welder ID will populate the field in the Timer Selection Menu.


2. Press Scan on the Timer Status screen. The DEP will scan the network and look for active weld timers.
When the scan is complete, a list of all the active weld timers will appear, identified by their IP Address and Welder ID. Press keys to navigate the cursor to the desired weld control and press .

The DEP-300s will attempt to connect to the selected weld timer and “Upload in Progress” appears to indicate the status.

Upon completion of the upload, the Mode Selection Menu will appear, indicating that a connection to the weld timer has been established.
METHOD 2:

The weld timer IP Address is manually added by the user. The DEP will then send a communication message to that IP Address on the network. If the gateway and routers on the network allow the DEP to communicate with that IP Address, then communication will be established. This method is recommended when trying to find a weld timer that is on the network, but located within a different Subnet Mask than the DEP.

NOTE: This feature is only available when the DEP-300s is connected to the Global EtherNet (See “Network Communications” on page 29). If the DEP-300s is connected via the Local EtherNet or the Serial Network, this feature is inaccessible.

① From the Timer Status Screen press Edit.

Using the numeric keys enter the IP address of the weld control you want to connect. Press \( \text{SPACE} \) after entering the values in each field and press the \( \text{ENTER} \) key to move the cursor to the next field. When the complete IP Address has been added, press the Add \( \text{F2} \) key.

The new IP Address will appear in the Timer Selection Window. Then press the BACK \( \text{F1} \) key to go back to the weld control status menu.
Using the \( \downarrow \) and \( \uparrow \) keys, move the cursor over the new IP Address and press \( \text{Enter} \).

If the DEP 300s is able to connect successfully to the weld control, the status will be displayed.

NOTE: Pressing Save \( F4 \) after the weld controls are added to the list either manually or by scanning the Global Ethernet, allows the user to quickly connect to or view the list of weld controls available on the network when the DEP 300s is reconnected.
3. SERIAL NETWORK

The DEP-300s is capable of communicating with multiple weld timers on an RS-485 serial network. To connect to a weld timer on the serial network, perform the following steps:

**NOTE 1:** For instructions on how to physically connect the DEP-300s to a weld timer for Serial network communications, see “Physical Connections” on page 11.

**NOTE 2:** The DEP-300s does not support Token Passing. Which means the DEP can “see” multiple timers on the serial network, but can communicate with only one at a time. Also, since the DEP-300s does not support Token Passing, only one can be connected to the network at a time. Devices that support Token Passing, such as the DEP-100s, DP-200 or the WebView Network Gateway, can not be used on the serial network with the DEP-300s.


2. The DEP-300s will automatically begin to scan the network and look for active weld timers. If only one timer is found, the DEP will automatically attempt to connect to it.
NOTE: If multiple weld timers appear in the Timer Status Menu, proceed to step 4 below.

Upon completion of the upload, the Mode Selection Menu will appear, indicating that a connection to the weld timer has been established.

Multiple timers on a serial connection are only found if the specific weld control and firmware installed supports Cascade Mode. In this situation as highlighted above, the list of weld controls will appear with the same IP address and Welder ID differentiated as TX1, TX2 and TX3 in the Status column.

To connect to a specific weld control use the ↓ or ↑ keys to take the cursor over the desired weld control (TX) and press ENTER. The DEP-300s will attempt to connect with the selected weld control (TX) and “Upload in Progress” will appear on the screen.

Upon completion of the upload, the Mode Selection Menu will appear, indicating that a connection to the weld timer has been established.
4. CHANGING LANGUAGE PREFERENCE

The DEP-300s is designed to interface with weld controls that support multiple languages. The DEP-300s has its own language preferences, which can be changed to match the language preferences of the weld timer the DEP is connected to. For example, if the language preference of the weld timer is set to German, the language preferences of the DEP can also be changed to German, and so on.

The DEP-300s currently supports the following languages:
- English
- German
- Spanish
- Portuguese
- French
- Chinese
- Korean
- Japanese
- Turkish

English is the default language of the DEP 300s.

NOTE: Language options other than English are application specific and may not be available in your weld timer. Furthermore, data uploaded from a weld control to the DEP is dependent on the language preference settings for that weld control.

PROCEDURE TO CHANGE THE LANGUAGE OF THE DEP 300s

Press the key to scroll the cursor down until the desired language is selected. Notice as the cursor scrolls over a particular language, the language of the [F1–F5] tags changes accordingly.
When the cursor is over the desired language, the change is complete. Press [F1 – F4] to continue.

**NOTE:**  WTC is continuously increasing the number of languages its weld controls support. Your DEP-300s and weld control may support additional languages, which are not listed above. If your DEP-300s and weld timer do not support your present language requirements contact your WTC Sales Representative.
Chapter 3: MODE SELECTION

Once the DEP has successfully connected to a weld timer, the Mode Selection Menu is displayed. This menu allows the user to access three options: Program Mode, Status Mode and Display Mode. In addition, by selecting the Change Timer option, the user can change which timer the DEP is connected to on the network.
HOME [F1]

When the HOME [F1] key is pressed from the Mode Selection Menu, the following message will appear: "Returning to Home Menu will close communications to the timer Please Confirm". When CONFIRM [F1] is pressed, the communication between the DEP and the weld timer is closed and the DEP will return to the Home Menu.

For details on each Mode refer to the following chapters:

Chapter 4: Program Mode
Chapter 5: Status Mode
Chapter 6: Display Mode
Chapter 7: Change Timer

**NOTE:** See page 16 for quick one-touch navigation using Hot Keys to view commonly accessed menus.
Chapter 4: PROGRAM MODE

Program Mode is used to review and edit weld schedules, current steppers and setup parameters for a weld control. It is also used to review and edit other parameters, including EtherNet/IP, Welder ID, Reload Timer Defaults, Local EtherNet, FieldBus Mapping and Network Address.

When the PROGRAM MODE key is pressed, the following menu is displayed:
PROGRAM MODE- NAVIGATION TREE

| LEVEL 1: | 1.1 Review Schedule  
|         | 1.2 Review Stepper  
|         | 1.3 Review Setups  
|         | More |

| LEVEL 2: | 2.1 Review HIC  
|         | 2.2 EIP Options  
|         | 2.3 Welder ID  
|         | 2.4 Reload Options  
|         | More |

| LEVEL 3: | 3.1 Local Ethernet  
|         | 3.2 FieldBus Mapping  
|         | 3.3 I/O Mapping  
|         | 3.4 Network Address  
|         | More |

| LEVEL 4: | 4.1 Servo Cal  
|         | 4.2 Spots  
|         | More (Back to Level 1) |

**WARNING:**
Carefully read the instructions below prior to editing parameters in the weld timer. When editing parameters that require a power re-cycle on the weld control cabinet for the changes to take effect, it is recommended making all the changes first prior to re-cycling power. Thus, only one re-cycle is required.
LEVEL 1:

The following options are available within the Program Mode Menu - Level 1 by pressing the corresponding keys:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>F1</strong></td>
<td>Returns the user back to the Mode Selection Menu.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>F2</strong></td>
<td>Allows the user to edit, insert or delete functions within the weld schedule. For more information, see Review Schedule Menu.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td><strong>F3</strong></td>
<td>Allows the user to view and edit the stepper programs within the weld timer. For more information, see Review Stepper Menu.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>F4</strong></td>
<td>Allows the user to view and edit the programmable faults and setup parameters within the weld timer. For more information, see Review Setups Menu.</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td><strong>F5</strong></td>
<td>Displays additional Program Mode options (see below).</td>
</tr>
</tbody>
</table>
LEVEL 2:

The MORE [F5] key displays additional Program Mode options:

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review HIC</td>
<td>Allows the user to view the Review HIC Menu. This option is customer application specific and may be inaccessible. For more information, see Review HIC Menu.</td>
</tr>
<tr>
<td>EIP Options</td>
<td>Allows the user to view and configure the Global EtherNet/IP (EIP) Network settings and the EIP I/O bit map settings. For more information, see EIP Options Menu.</td>
</tr>
<tr>
<td>Welder ID</td>
<td>Allows the user to assign an alpha-numeric name to the weld timer. For more information, see Welder ID Menu</td>
</tr>
<tr>
<td>Reload Options</td>
<td>Allows the user to reload the factory-set default values of the weld timer. For more information, see Reload Options Menu</td>
</tr>
<tr>
<td>MORE</td>
<td>Displays additional Program Mode options (see below).</td>
</tr>
</tbody>
</table>

The MORE [F5] key displays additional Program Mode options:
LEVEL 3:

<table>
<thead>
<tr>
<th>Menu</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local Ethernet</strong></td>
<td>Allows the user to view and configure the Local Ethernet settings (IP Address, SubNet Mask and Gateway) of the weld timer. For more information, see Local Ethernet Menu.</td>
</tr>
<tr>
<td><strong>FieldBus Mapping</strong></td>
<td>Allows the user to view and configure the FieldBus I/O bit map to support an optional DeviceNet or ProfiBus daughter board on the weld control. For more information, see FieldBus Mapping Menu.</td>
</tr>
<tr>
<td><strong>I/O Mapping</strong></td>
<td>Allows the user to view and configure the Discrete I/O bit map of the weld timer. This option is customer application specific and may be inaccessible. For more information, see I/O Mapping Menu.</td>
</tr>
<tr>
<td><strong>Network Address</strong></td>
<td>Allows the user to view and edit the Serial Node Address of the weld timer. For more information, see Network Address Menu.</td>
</tr>
<tr>
<td><strong>MORE</strong></td>
<td>Displays additional Program Mode options (see below).</td>
</tr>
</tbody>
</table>
LEVEL 4:

The following options are available within this Menu by pressing the corresponding keys:

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVO CAL</td>
<td>Customer application specific. Only available with certain software.</td>
</tr>
<tr>
<td>Spots</td>
<td>Allows the user to make Spot and Schedule assignments. For more information see Spots Menu.</td>
</tr>
<tr>
<td>MORE</td>
<td>Returns the user back to the top of the Program Mode Menu.</td>
</tr>
</tbody>
</table>
LEVEL 1.1: REVIEW SCHEDULE MENU

The Review Schedule menu allows the user to add or delete functions in a weld schedule or edit the parameters assigned to a function. In addition, it allows the user to change the weld schedule to be viewed.

When the REVIEW SCHEDULE key is pressed, the DEP will display schedule #1 by default (see below).

If the number of functions in the weld schedule exceeds the size of the viewable area on the display, a scroll bar will appear on the right side of the display. Press the key to scroll by line or key to scroll by page view for functions outside the current viewable area.

CHANGING THE SCHEDULE NUMBER

① Press Sch#
Notice the weld functions will turn gray or “ghost out”. Using the number keys, enter desired Schedule Number.

Press ENTER.

The new weld schedule is now displayed.

NOTE: Schedule changes can only be made to the weld timer that the DEP-300s is presently connected to on the network. Make certain the correct weld timer IP Address and Welder ID is displayed at the top of the menu, in addition to the correct weld schedule for that weld timer, prior to making any programming changes.
PROGRAMMING A SCHEDULE

When a schedule is displayed, the user can insert or delete a function into the schedule, or change the programmable values of a function.

INSERT A FUNCTION IN A WELD SCHEDULE

① From the Review Schedule screen, press MORE.

Confirm to make sure that the correct schedule # is displayed.

② Press the ↑ or ↓ arrow keys to move the cursor to the line above where the new function is to be inserted.

③ Press INSERT
1. Press INSERT BY FN. # [Insert by Function Number.]

2. Using the number pad, enter the desired Function Number.

3. Press ENTER

If the function requires the parameters to be entered/edited, proceed to step 8. If not, proceed to step 17.

**TIP 1:** To find the desired weld function quicker, press the WELD [F2] key to scroll the function list down to the beginning of the weld functions, which typically starts at #20.

**TIP 2:** To find the desired I/O function quicker, press the I/O [F3] key to scroll the function list down to the beginning of the I/O functions, which typically starts at #50.
For functions with two or more parameters, press the RIGHT arrow key to move the cursor to the next parameter box, then repeat steps 8 & 9. When complete, proceed to step 11.
Press APPLY (F2). [Saves changes to the DEP-300s only.]

Press DOWNLOAD. [Downloads the changes to the weld processor].

When complete, a “Download Complete” message will appear.
DELETE A FUNCTION FROM A WELD SCHEDULE

Perform the following steps on the DEP-300s to delete a function from a weld schedule:

1. Press Program Mode
2. Press Review Schedule
1. Press Sch#

2. Enter Schedule Number

3. Press ENTER
1. Press MORE

2. Press the ↑ or ↓ arrow keys to move the cursor to the function line to be deleted.
Press DELETE. [The function is immediately deleted from the DEP-300s.]

Press DOWNLOAD [Downloads the changes to the weld processor. When complete, a "Download Complete" message will appear]
COPYING A WELD SCHEDULE

Perform the following steps on the DEP-300s to copy an entire weld schedule from one location and paste it into another:

1. Press Program Mode
2. Press Review Schedule
Press Sch# to enter the schedule number.

Enter the schedule number as shown in the display and press ENTER.
FROM SCHEDULE #
(Current Schedule will be displayed) TO [Blank Field] enter the paste to Schedule Number

Press ENTER

The copy is immediately downloaded to the weld processor. When complete, a "Download Complete" message will appear.

NOTE: When copying a weld schedule from one location to another, any existing data in the paste location will be completely overwritten and permanently lost.
LEVEL 1.2: REVIEW STEPPER MENU

WTC weld control software is designed with stepper programs that keep track of the weld count and gradually increase heat after a programmed number of welds. The number of steppers available varies with different programs. (Refer to your software specific manual for more details on the stepper program). The Review Stepper menu provides information on the stepper profile, number of stepper programs available and allows editing of the stepper parameters.

Some weld controls provide multiple independent steppers. Each weld schedule can be assigned to a stepper and you can define a different profile for each stepper. The profile tells the control when and how compensation is provided.
CHANGING THE STEPPER NUMBER:

1. To view and edit a Stepper profile, other than the one displayed, press F2.

2. You will notice that the rest of the screen will gray out and the Stepper # field opens up an edit box. Using the numeric keys enter the number for the desired Stepper.

3. Press SPACE.

EDITING A STEPPER PROFILE

You program the stepper settings for each weld control using the Review Stepper function on the Program Mode display, to:

- Review a stepper profile
- Review the current limits for the stepper
- Review the stepper parameter settings
The stepper settings determine when current is added and the amount of current to add. When you select REVIEW STEPPER, you’ll see a menu to program the stepper settings.

Example of a stepper profile as accessed from the Review Stepper key from the previous screen. By default, Stepper #1 is displayed.

This display shows the amount of energy to add to the weld function during each step of the stepper profile (either % heat or secondary current, based on the firing mode used by the weld function executed). Weld energy is added by the stepper over the 5 steps in the profile, in increments of 3%. The amount of weld energy added or subtracted is determined by the weld count and the values programmed in the stepper profile.

For example, the sample display shows that in step #1, the control will 3% heat to the base heat (programmed in the weld function) over the course of 60 welds.

If the weld function used the constant current firing mode (rather than automatic voltage compensation), the device would instead add 100 amps of secondary current to the base amps (programmed in the weld function) over the course of 60 welds.
TO CHANGE THE STEPPER #:

1. Press Stepper #

2. Enter Stepper Number

3. Press ENTER

EDITING A PARAMETER ON THE REVIEW STEPPER MENU ON THE DEP 300s:

1. Press the ↑ or ↓ arrow keys to move the cursor onto the parameter line to be edited.
① Press ENTER

③ Enter parameter

④ Press ENTER

⑤ For parameters with two or more data fields, press the arrow key to move the cursor to the next data field box, then repeat steps 3 & 4. When complete, proceed to step 6.
Press APPLY
[Saves changes to the DEP-300s only.]

To edit more parameter lines, repeat steps 1 through 6. When complete, proceed to step 8.

Press DOWNLOAD
[Downloads the changes to the weld processor. When complete, a “Download Complete” message will appear]
LEVEL 1.3 REVIEW SETUPS MENU

WTC weld controls use a number of programmable settings, called set-up parameters, to enable you to customize a weld control to meet your application requirements.

The set-up parameters tell the control about its operating environment: how to react to certain conditions (as FAULT or ALERT conditions) and how to react when certain inputs become active.

Every device has a unique set of parameters. Refer to the Operator’s Manual provided with the weld device for more information.

WARNING:

The weld control will ignore changes to certain set-up parameters (such as those controlling retract operation) until power to the device is cycled (turned off and then back on).

Because these settings control operation of the weld device, extreme care should be exercised before making changes to set-up parameters!

From the Program Mode display menu, selects the Review Setup display, which is used to see or change the current settings for a weld control’s set-up parameters.
LEVEL 2.1 REVIEW HIC MENU

The Review HIC Menu is customer application specific. Consult the weld timer firmware manual for more information.

LEVEL 2.2 EIP OPTIONS MENU

The EIP Options Menu allows the user to configure the Global EtherNet IP Network settings, such as IP Address, SubNet Mask, Gateway, DHCP, etc. In addition, it also allows the user to configure the EtherNet IP I/O Mapping.

INPUT MAPPING

The following procedure explains how to reconfigure the EIP Input Map. In this example, Input 4 will be re-mapped from the NONE bit to the PRESSURE SWITCH bit:

1. Press EIP Options
① Press Input Mapping.

③ Press the \( \downarrow \) key to move the cursor to the “Input 4” field.
① Press \[ \text{Press } \] and a drop-down box will appear containing all the available input bits.

② Press \[ \text{Press } \text{ key until the cursor is on the PRESSURE SWITCH bit.} \]
① Press SPACE key. NONE will be replaced with PRESSURE SWITCH in the Input 4 field. Press EXECUTE . This begins the process to download the change to the weld timer.

② Press SPACE key. NONE will be replaced with PRESSURE SWITCH in the Input 4 field. Press EXECUTE . This begins the process to download the change to the weld timer.

**NOTE:** Your timer screen may display different information depending on software installed. The screen shots used in the following procedures are for illustrative purpose only.
The following procedure explains how to reconfigure the EIP Output Map. In this example, Output 18 will be re-mapped from the NONE bit to the PRESSURE SELECT 1 bit:

1. The message “Download complete power cycle required” will appear. Cycle power on the weld control to complete the process.

**EIP OUTPUT MAPPING**

The following procedure explains how to reconfigure the EIP Output Map. In this example, Output 18 will be re-mapped from the NONE bit to the PRESSURE SELECT 1 bit:

Press the **SPACE** key. A drop-down box will appear. Using the **↓** key move the cursor to “Outputs 17-24” and press **ENTER**.

Outputs 17-24 will now be displayed. Press the **↓** key to move the to the “Output 18” field.
① Press the `Enter` key. A drop-down box will appear containing all the available output bits. Using the `Enter` key move the cursor to "PRESSURE SELECT 1" and press `Enter`.

**NOTE:** The display accommodates only 8 input/output lines per view. If the desired input/output is not visible in the first view, press `Enter` which will open up the extended list in a drop down menu. The using the `Enter` key navigate to the section of desired inputs/outputs and press `Enter`.

⑤ NONE will be replaced with PRESSURE SELECT 1 in the Input 18 field.

Press EXECUTE This begins the process to download the change to the weld CONTROL.
Note: Once a schedule is edited the change is carried over to all spots with the same schedule.

1. The message “Do you want to change EIP information” will appear. Press CONFIRM.

2. The message “Download complete power cycle required” will appear. Cycle power on the weld control to complete the process.
LEVEL 2.3 WELDER ID MENU

The Welder ID Menu allows the user to program an alpha-numeric name to the weld timer.

TO ENTER A WELDER ID NAME, PERFORM THE FOLLOWING STEPS:

1. Press the \[\text{SHIFT}\] key. Ensure the green LED is ON.

2. Using the number keys to enter an alpha-numeric name.

3. While the Shift Key is still ON, press the \[\text{SPACE}\] key to add a space or the \[\text{DELETE}\] key to backspace.

4. Press the \[\text{SHIFT}\] key. Ensure green LED is OFF. \[\text{SHIFT}\].

5. Press the \[\text{SPACE}\] key to save the changes to DEP memory.

6. The Download button will now change state from the previous default “ghosted-out” state. Press \[\text{F2}\] to save changes to the weld control.
LEVEL 2.4 RELOAD OPTIONS MENU

The Reload Options Menu allows the user to configure many different weld control options. The control options available will vary depending upon the customers application requirements and the firmware loaded into the weld control.

Below is an example of a typical Reload Options Menu:

2.4.1 CHANGING THE CONTROL OPTIONS

The following explains how to change the control options, using Reload Defaults as an example. In this example, the weld timer will be changed from ROBOT MODE to MACHINE MODE:

1. Using the \( \downarrow \) or \( \uparrow \) keys as necessary move the cursor over the RELOAD DEFAULTS window and press the \( \text{SPACE}\ \text{ENTER} \) key.

2. A drop down menu will appear displaying all available options. Using the \( \downarrow \) or \( \uparrow \) keys as necessary move the cursor over MACHINE option and press the \( \text{SPACE}\ \text{ENTER} \) key.
The message, “Do you want to RELOAD CONTROL information?” will appear. Press CONFIRM. This begins the download process to the weld timer.

When the download process is complete, the message, “Download Complete Power Cycle Required” will appear. Cycle power on the weld control to complete the process.

2. 4. 2 SETTING THE WELD CONTROL LANGUAGE
The Language Menu allows the user to select weld control language.

English is the default language of the weld control. To reload application in any of the available languages, follow the procedure below.

1. Using the arrow key, move to the “Language” field on the screen and Press Enter. The drop down list will display all available languages.

2. Using the arrow key, move to the desired language and press Enter to select the language.

The selected language will be displayed in the “Language” field.

Press F2 to execute the change.
The message, “Do you want to RELOAD CONTROL Information?” is displayed.

Press \( \boxed{F2} \) to Confirm.

Cycle power to the control to complete the language change procedure.
BREAKER TYPE

1. Using the arrow key, move to the “Breaker Type” field on the screen and Press . The drop down box will display the available breakers. Using the arrow key, move to the desired breaker type and press to select.

2. The message “Do you want to RELOAD CONTROL Information?” is displayed. Press to Confirm the selection.
③ When the download process is complete, the message, “Download Complete Power Cycle Required” will appear. Cycle power on the weld control cabinet to complete the process.
2.4.3 SPOT TO SCH ASSIGNMENT

The SPOT TO SCH ASSIGNMENT menu allows setting up welding schedules that are associated with spot numbers. Another feature of this option is to initiate the weld control based on spot numbers instead of schedule numbers. For detailed description of the Spot ID feature refer to your firmware specific manual.

Spot to Schedule assignment can be made with the following two options:

<table>
<thead>
<tr>
<th>ONE TO ONE</th>
<th>Many to One</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Default)</td>
<td>One schedule assigned to Many spots</td>
</tr>
</tbody>
</table>

**SPOT TO SCH IN ONE TO ONE MODE (DEFAULT):**

1. Using the \( \downarrow \) arrow key, move the cursor to the "SPOT TO SCH ASSIGNMENT" field and press \( \text{Space} \) \( \text{Enter} \). The drop down box will display the available options.

In this procedure, we will leave it at default mode ONE TO ONE. PRESS \( \text{F2} \) to Execute.
The message, “Do you want to RELOAD CONTROL information?” will appear. Press CONFIRM. This begins the download process to the weld timer.

When the download process is complete, the message, “Download Complete Power Cycle Required” will appear. Cycle power on the weld control to complete the process.

NOTE: When this mode is selected, Spots and Schedules have a One to One relationship where a unique spot is assigned to a specific schedule.
SPOT TO SCH IN MANY TO ONE METHOD:

① Press the ↓ arrow key twice to bring the cursor to SPOT TO SCH ASSIGNMENT. Press  This opens up a drop down box displaying the available modes. Press the ↑ arrow key to select MANY TO ONE.

② Press ENTER .

③ Press Execute.
Do you want to RELOAD CONTROL information will be displayed. Press \( B \) to confirm.

Press \( B \) to Execute and cycle power to the weld control to confirm the change.

**NOTE:** When this mode is selected, more than one spots can be assigned to a single schedule. Up to a maximum of 1000 associations to a single schedule are allowed.
LEVEL 3.1 LOCAL ETHERNET MENU

The Local EtherNet Menu allows the user to view and edit the Local EtherNet configuration settings.

CHANGING THE LOCAL ETHERNET IP ADDRESS, SUBNET MASK OR GATEWAY ADDRESS

Perform the following steps to change the Local EtherNet IP Address, SubNet Mask or Gateway Address:

1. Press the or key to move the cursor to the appropriate line to be edited (IP Address, SubNet Mask or Gateway).
Press the \[ M \] and \[ Q \] keys to move the cursor over the appropriate field to be edited.

Press the \[ ENTR \] keys to enter a numeric value.

Press the \[ SPAC \] key to save the change or the \[ DEL \] key to cancel the change.

Repeat steps 1 through 4 if changes are required for any additional fields.

After changes are made of any of the address fields, the Download button changes its state to black. Press \[ F2 \] to DOWNLOAD changes to the weld control.
When the download to the weld timer is complete, the message “Download Complete Power Cycle Required” will appear. Cycle power on the weld control for the changes to take effect.

CHANGING THE LOCAL ETHERNET IP ADDRESS VIA THE SERIAL NETWORK

If the DEP does not establish a Local EtherNet connection with the weld control, the IP Address of the weld control may not be set to 89.89.200.250. To verify, perform the following steps:

1. From the Home Menu, press the SERIAL key.

2. Follow the steps in Serial Network in Chapter 2 to establish a serial connection with the weld timer.

NOTE: For instructions on how to physically connect the DEP-300s to a weld control for Serial network communications, see Physical Connections in Chapter 1.
① When a serial connection is established between the DEP and the weld timer, press the PROGRAM MODE key.

② From the Program Mode Menu, press the MORE key twice.
3. Press the LOCAL ETHERNET [F1] key.

4. Verify the IP Address is set to 89.89.200.250. If it is incorrect, continue to step 7.

5. Press the and keys to move the cursor over the appropriate field to be edited.

6. Press the keys to enter a numeric value.

7. Press the key to save the change or the key to cancel the change.

8. Repeat steps 7 though 9 if changes are required for any additional fields.
(1) Press the DOWNLOAD [F2] key to save changes to the weld timer.

(2) When the download to the weld timer is complete, the message “Download Complete Power Cycle Required” will appear. Cycle power on the weld control cabinet for the changes to take effect.
LEVEL 3.2 FIELDBUS MAPPING MENU

The steps to configure the FieldBus I/O Mapping are identical to the steps to configure the EIP I/O Mapping. While in the FieldBus Mapping Menu, follow the steps explained above in either EIP Input Mapping or EIP Output Mapping (whichever is applicable), to configure the FieldBus I/O map.
LEVEL 3.3 I/O MAPPING

The I/O Mapping Menu is customer application specific. Consult the weld control firmware manual for more information.

LEVEL 3.4 NETWORK ADDRESS MENU

The Network Address Menu allows the user to set the Serial Network Node Address for the weld timer.
The default address is 0.

TO CHANGE THE SERIAL NETWORK NODE ADDRESS, PERFORM THE FOLLOWING STEPS:

① Press the keys to enter the desired node address.

② Press the key to save the changes to DEP memory.

③ Press the DOWNLOAD key to save changes to the weld timer.

LEVEL 4.1 SERVO CAL

The Servo Cal Menu is customer application specific. Consult the weld control firmware manual for more information.
The Spots menu allows the user to make the Spot to Schedule assignments.

Before moving ahead with this function, confirm the parameters previously determined (One to one or Many to One) in the RELOAD OPTIONS menu - “2. 4. 3 SPOT TO SCH ASSIGNMENT” on page 85.

- Edit schedule list
- Modify schedule
- Duplicate Spots
ASSIGNING SPOTS IN ONE TO ONE MODE

① Press **F2** to open the Spot menu.

② If no spots have been previously assigned, the screen displays “No Spots”. Then proceed to step 3. If existing Spots numbers are found, the screen will default to the schedule view with associated spot number as depicted below.

③ Press **New F3**
By default 256 is displayed in the Spot # field since that is the minimum spot number that can be assigned. Numbers 1-255 are reserved as there are 255 welding schedules and a number within that range may cause a conflict when firing.

To edit the Spot number, press to insert the cursor within the Spot # field and using the keys, enter the desired spot number and press . You will notice that the cursor will stop blinking.

By default schedule # 1 is inserted in the Assigned # field. To edit the schedule number, press key to move the cursor to the field and press . The cursor will begin to blink.

Using the keys enter the desired schedule number and press .
Press New to complete the assignment. Wait until the message "Download Complete" is displayed, indicating the Spot to Schedule assignments have been made.

Follow steps 4 - 6 to add more spots and make the schedule assignments.

NOTE: The error message displayed above is annunciated when the weld control is configured in ONE TO ONE MODE and an attempt is made to assign a new spots number to a schedule that already has a spot association.
Pressing Back \( F_1 \) takes the user to the screen above. \( F_3 \) will open up the screen to add a new spot as shown in step 5.

**TO REMOVE A SPOT:**

\( F_4 \) enables the Removal of a spot.

1. By default the lowest spot number is visible in the Spot # field. To view all available Spots, press \( \text{SPACE} \) \( \text{ENTER} \), which opens a list of additional Spot numbers. To scroll the list use the \( \text{S} \) or \( \text{F} \) keys or the \( \text{A} \) to scroll down by page and \( \text{B} \) to scroll up the page.

2. With the cursor on the selected spot number, press \( \text{SPACE} \) \( \text{ENTER} \). Verify that the correct spot number is displayed in the Spot # field and press \( \text{C} \) to Remove the spot.
③ Wait for the message - “Download Complete” to indicate removal of the spot.

Pressing the button lets the user Switch between spots.

Press to display the screen above. Press to view the list of spots. Then using the or keys or the to scroll down by page and to scroll up the page, move the cursor to the desired spot number and press.

The Spot # field will display the selected Spot. Press to Switch.
The schedule assigned to the selected spot will be displayed.

**TO EDIT A SCHEDULE:**

1. Press **F5** to edit the schedule.

2. Press **F4** to Insert a function in the weld schedule. For detailed instructions on inserting a function follow the procedure - "Insert a Function in a Weld Schedule" on Page 49.

3. Press **F5** to Delete a function in a weld schedule. For detailed instructions on deleting a function follow the procedure - "Delete a Function from a Weld Schedule" on page 55.
Chapter 5: STATUS MODE

The Status Mode displays information on the overall welding status of various processes within the weld control.

These include:

- Faults
- Steppers
- RAFT Functions
- I/O Status
- Weld Data
- Errors
When the \( F_3 \) key is pressed, the following menu is displayed:

The Status Mode display tells you the options you can select when you press the corresponding keys \( F_1 \) to \( F_5 \).

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAULT</strong></td>
<td>Press ( F_1 ) to see the fault information logged at the weld control, set fault filtering and reset the weld control. (See page 106)</td>
</tr>
<tr>
<td><strong>STEPPER STATUS</strong></td>
<td>Press ( F_3 ) to control the stepper. You can turn a stepper on or off, reset, or advance the stepper from this display. (See page 108)</td>
</tr>
<tr>
<td><strong>RAFT</strong></td>
<td>The ( F_4 ) key allows the user to view the RAFT Menu. This option is customer application specific and may be inaccessible. (page 113)</td>
</tr>
<tr>
<td><strong>MORE</strong></td>
<td>The ( F_5 ) key displays additional Status Mode options (see below).</td>
</tr>
</tbody>
</table>
### HIC
Press \( F_1 \) to view the HIC Menu. This option is weld control firmware specific and may be inaccessible. (page 115).

### I/O STATUS
Press \( F_2 \) to see the current state of the I/O for a selected device.

### WELD DATA
Press \( F_3 \) to view the status of certain key weld parameters. These include the schedule initiated, line voltage, power factor and secondary current provided during the last weld executed by the selected weld control.

### PRESSURE CONTROL
The \( F_4 \) key allows the user to view the Pressure Control Menu. This option is customer application specific and may be inaccessible. (page 120)

### MORE
The \( F_5 \) key displays additional Status Mode options (see below).

---

### ERRORS
Press \( F_1 \) to view the Errors Menu. (page 120).

### MORE
Press \( F_3 \) to return back to the first Status Menu screen.
FAULT MENU

The Fault Menu allows the user to view, reset and filter both faults and alerts. When a fault or alert occurs, it is displayed on the Fault Menu.

This display is used to determine which fault condition was detected by the weld control. The fault descriptions and troubleshooting instructions are defined in the firmware User Manual provided with the weld control unit.

The following options are available within the Fault Menu by pressing the corresponding keys:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACK</td>
<td>Press ( F_1 ) to return back to the previous Status Menu screen.</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>Press ( F_3 ) to filter the faults viewed on the Fault Menu.</td>
</tr>
<tr>
<td>RESET</td>
<td>Press ( F_5 ) to reset both faults and alerts.</td>
</tr>
</tbody>
</table>
FAULT FILTERING

Press the OPTIONS \( F_3 \) button to categorize and filter what is viewed on the Fault Status Menu. Options include ALL, FAULTS, ALERTS or HISTORY.

NOTE: Fault filtering options are customer application specific and may vary depending on the firmware loaded in the weld control. Consult the weld control manual for more information.

NOTE: The fault History feature is only available in special weld control firmware that support fault history. Contact your sales representative for more information.
STEPPER STATUS MENU

The Stepper Status Menu allows the user to view the status of any stepper program within the weld control. Stepper programs can also be advanced and reset from this menu.

The Stepper Status display cannot be used to program the stepper profile or to set the stepper parameters. To do this, you must press the **PROGRAM MODE** key and press for the Review Stepper menu. (For more information, see “Level 1. 2: Review Stepper Menu” on page 63)

The information shown in the Stepper Status display is based on the stepper used by the schedule selected for a device.

| **BACK** | Press `F1` to return back to the previous Status Menu screen. |
| **ADVANCE** | Press `F2` to advance the stepper program to the first weld of the next step. When the stepper advances, the following changes will occur in the Stepper Status Screen: |
| | • The **Step Count** will reset to zero. |
| | • The **Total Weld Count** will advance to where its count would be at the first weld of the next step. |
| | • The **Aux. Counter** will not change when the stepper is advanced. If the user wants the Aux. Counter count to match the Total Weld Count, the value will have to be manually entered here. |
The following chart describes the parameters, which appear on the Stepper Status Menu:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPPER #</td>
<td>Press $\text{F3}$ to change the stepper program number being viewed on the Stepper Status Menu.</td>
</tr>
<tr>
<td>RESET GRP</td>
<td>Press $\text{F3}$ to Reset the Stepper Programs assigned to a Group (1or 2).</td>
</tr>
<tr>
<td>RESET ALL</td>
<td>Press $\text{F5}$ to globally reset all stepper programs.</td>
</tr>
</tbody>
</table>

The following chart describes the parameters, which appear on the Stepper Status Menu:

**NOTE:** The parameters displayed in this menu may vary depending upon the customers application requirements. For application specific information, consult the weld control firmware manual.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPPER</td>
<td>Turns the stepper either ON or OFF. The default position is ON.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> This parameter is customer application specific and may be disabled. Consult the weld control manual for more information</td>
</tr>
<tr>
<td>STEP #</td>
<td>The step number the stepper program is currently in (1 through 5)</td>
</tr>
<tr>
<td>STEP COUNT</td>
<td>The weld count within the step, the stepper program is currently in.</td>
</tr>
<tr>
<td>BOOST% I</td>
<td>The current boost being applied to each weld.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> If a Percentage of Available Volt-Seconds weld function is used, this value will be displayed as a percentage. Conversely, if a Constant Current weld function is used, this value will be displayed in absolute amps.</td>
</tr>
<tr>
<td>TOTAL WELD COUNT</td>
<td>The total weld count since the beginning of the stepper program, when tip dress functionality is disabled in the stepper program. If tip dress functionality is enabled, refer to the Auxiliary Counter for total weld count.</td>
</tr>
<tr>
<td>TIP DRESSES</td>
<td>The Remaining Tip Dresses Count is a decrementing counter, which starts at the number entered in MAXIMUM TIP DRESSES parameter. This counter defines the maximum number of times the weld caps may be dressed before they must be changed. Each time the weld processor receives a tips dressed index, the Remaining Tip Dresses Count decrements by one. When this count decrements to zero, an END OF STEPPER FAULT is generated. This indicates the weld caps must be changed.</td>
</tr>
<tr>
<td>AUX. COUNTER</td>
<td>The Auxiliary Counter is an incrementing counter, which mirrors the Total Weld Count counter above. Its max count is set by the value entered in the Aux Counter Max Counts parameter in the stepper profile.</td>
</tr>
</tbody>
</table>
An END OF STEPPER FAULT indicates the stepper program has ended. At this point, the weld caps must be replaced on the gun and the stepper program(s) must be reset. Stepper Reset changes all counts within the stepper program back to their beginning value. See example below:

Stepper programs can be “globally” reset by pressing the ResetALL key in the Stepper Status Screen. When this is done, every stepper program is reset, regardless of what group they are assigned to.

Perform the following steps from the DEP-300s Stepper Status Menu to globally reset the stepper programs:

1. Press `E F5`. 
The message "Do you want to RESET ALL STEPPERS" will appear.

Press CONFIRM. 

RAFT MENU

The RAFT Menu allows the user to view RAFT data and perform certain RAFT functions. This feature is customer application specific and may be inaccessible. For more information, see RAFT (Resistive Adaptive Feedback Technology) in the weld control firmware manual.
The following describes the data tags displayed in the RAFT Status Menu:

**NOTE:** The data displayed in this menu may vary depending upon the customers application requirements. For application specific information, consult the weld control firmware manual.

<table>
<thead>
<tr>
<th>SEQ#</th>
<th>Sequence (schedule) number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>AdaptQ Mode ON/OFF (0=OFF, 1=ON)</td>
</tr>
<tr>
<td>ref h</td>
<td>Total heat of the Reference Weld</td>
</tr>
<tr>
<td>h</td>
<td>Total heat</td>
</tr>
<tr>
<td>exp cy</td>
<td>The number of milliseconds since the beginning of the weld at which expulsion was detected</td>
</tr>
<tr>
<td>PI</td>
<td>Process Integrity</td>
</tr>
<tr>
<td>ref e</td>
<td>Total energy of the Reference Weld</td>
</tr>
</tbody>
</table>
HIC MENU

The HIC Menu is customer application specific. Consult the weld control firmware manual for more information.

IO STATUS MENU

The I/O Status Screen displays the status of every mapped I/O bit in the weld timer. Depending on the customers application, this can include:

- FieldBus I/O
- Ethernet I/O
- Local I/O
- Discrete I/O
Each I/O bit is represented by an I/O tag. Each tag will have either a "1" or "0" underneath it:

"1" indicates the bit is HIGH or ON.
"0" indicates the bit is LOW or OFF.

**NOTE:** The I/O bits displayed will vary depending upon the customers application requirements. For application specific information on I/O mapping, tag definitions, etc., consult the weld control firmware manual.
WELD DATA MENU

The Weld Data Menu allows the user to view various Weld and RAFT data values.

Constant Current and Percent of Available Volt-Seconds weld data.

RAFT weld data

Spot ID Number

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BACK</strong></td>
<td>Press <strong>F1</strong> to return back to the previous Status Menu screen.</td>
</tr>
<tr>
<td><strong>PREVIOUS</strong></td>
<td>Press <strong>F2</strong> to go back to the previous Weld Data Menu screen (if applicable).</td>
</tr>
<tr>
<td><strong>NEXT</strong></td>
<td>Press <strong>F3</strong> to go to the next Weld Data Menu screen (if applicable).</td>
</tr>
<tr>
<td><strong>RESET</strong></td>
<td>Press <strong>F4</strong> to reset all the displayed data values to zero.</td>
</tr>
</tbody>
</table>

**NOTE:** The data displayed in this menu may vary depending upon the customers application requirements. For application specific information, consult the weld timer firmware manual.
WELD DATA

<table>
<thead>
<tr>
<th>DATA TAG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>bus V</td>
<td>DC bus voltage (MAX, AVG, MIN)</td>
</tr>
<tr>
<td>Sec I</td>
<td>Secondary current (MAX, AVG, MIN)</td>
</tr>
<tr>
<td>Pri I</td>
<td>Primary current (MAX, AVG, MIN)</td>
</tr>
<tr>
<td>hfc</td>
<td>High frequency cycles (inverter output)</td>
</tr>
<tr>
<td>ont</td>
<td>On-time of the inverter in microseconds</td>
</tr>
<tr>
<td>%I</td>
<td>Percent of available volt-seconds measurement</td>
</tr>
<tr>
<td>cfactor</td>
<td>C-Factor calculation</td>
</tr>
<tr>
<td>sch#</td>
<td>Schedule number</td>
</tr>
<tr>
<td>lv</td>
<td>Inverter DC bus voltage (updated frequently)</td>
</tr>
<tr>
<td>cont#</td>
<td>Contactor number</td>
</tr>
</tbody>
</table>
### RAFT™ DATA

<table>
<thead>
<tr>
<th>DATA TAG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>AdaptQ Mode ON/OFF (0=OFF, 1=ON)</td>
</tr>
<tr>
<td>ref h</td>
<td>Total heat of the Reference Weld</td>
</tr>
<tr>
<td>h</td>
<td>Total heat</td>
</tr>
<tr>
<td>exp cy</td>
<td>The number of cycles since the beginning of the weld at which expulsion was detected</td>
</tr>
<tr>
<td>Learned I</td>
<td>The running adaptive current, as learned by the adaptive algorithm, from the last weld</td>
</tr>
<tr>
<td>PI</td>
<td>Process Integrity</td>
</tr>
<tr>
<td>ref e</td>
<td>Total energy of the Reference Weld</td>
</tr>
<tr>
<td>e</td>
<td>Total energy</td>
</tr>
<tr>
<td>wslide</td>
<td>Programmed WSLIDE from the AdaptQ function</td>
</tr>
<tr>
<td>thick</td>
<td>The estimated stack-up thickness based on the resistance reading during the weld.</td>
</tr>
<tr>
<td>NI</td>
<td>Nugget Integrity</td>
</tr>
<tr>
<td>TI</td>
<td>Tooling Integrity</td>
</tr>
<tr>
<td>RA</td>
<td>The average resistance of the last 166 mid-frequency cycles</td>
</tr>
<tr>
<td>RD</td>
<td>The resistance drop since the peak resistance (RP)</td>
</tr>
<tr>
<td>osr</td>
<td>Offset resistance as calculated for the stepper group</td>
</tr>
<tr>
<td>rise time</td>
<td>Number of MFDC half cycles to reach current</td>
</tr>
<tr>
<td>% saturation</td>
<td>Percent of MFDC half cycles terminated by primary current</td>
</tr>
</tbody>
</table>
PRESSURE CONTROL MENU

The Pressure Control Menu is customer application specific. Consult the weld control firmware manual for more information.

ERRORS MENU

The Errors Menu is a diagnostics tool, which logs network communication and DEP errors. This is for WTC use only.
Chapter 6: DISPLAY MODE

The Display Status menu provides the user with information regarding hardware status the weld control the DEP is connected to.

The Display Mode enables you to perform the following tasks to change:

- To quickly access weld schedules
- To review the weld functions in a schedule
- To adjust the adjust weld current.
The following is the information typically displayed within the Display Status Menu. The actual information displayed may vary depending on the firmware version loaded into the weld control and the customer's application requirements:

**INFORMATION DISPLAYED**

- Timer firmware revision and inverter type.
- Timer assembly build date.
- Inverter chill plate temperature.
- FPGA revision number.
- Timer assembly expansion board type and revision number.
- Timer assembly CPU part number and serial number.
- EtherNet 1 MAC Address.
- EtherNet 2 MAC Address.
- RedBoot version.

The following options are available within the Display Status Menu by pressing the corresponding keys:

<table>
<thead>
<tr>
<th>BACK</th>
<th>HEAT DISPLAY</th>
<th>REFRESH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press [F1] to return back to the Mode Selection Menu</td>
<td>Press [F2] to change the heat function parameters within a weld schedule without going into the Program Mode Menu. See Heat Display Menu for more information.</td>
<td>Press [F3] to show the most up to date information.</td>
</tr>
</tbody>
</table>
HEAT DISPLAY MENU

The Heat Display Menu allows the user to change the amount of weld energy provided by a schedule without using Program Mode and edit RAFT function parameters within a weld schedule without going into the Program Mode Menu.

<table>
<thead>
<tr>
<th>BACK</th>
<th>Press  F1  to return back to the Mode Selection Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCH#</td>
<td>Press  F2  to change the schedule number being viewed. See Changing the Schedule Number below.</td>
</tr>
<tr>
<td>DOWNLOAD</td>
<td>Press  F3  to download changes to the weld timer. See Editing a Parameter below.</td>
</tr>
</tbody>
</table>

NOTE: The functions typically listed in the Heat Display Menu are schedule functions #20 through #49. The actual functions displayed may vary depending on the firmware version loaded into the weld control and the customer’s application requirements. For a list of these functions, see Chapter on Schedule Function List within the weld control firmware manual.
CHANGING THE SCHEDULE NUMBER FOR HEAT DISPLAY

To view a different schedule perform the following steps:

1. Press the SCH # key. A window will appear around the schedule number at the bottom of the screen.

2. Using the  keys, enter the desired schedule number and press . The new schedule is displayed.
EDITING A PARAMETER

To change a function parameter, perform the following steps:

1. Using the \[ \text{S} \] and \[ \text{F} \] keys move the cursor over the function to be edited and press \[ \text{SPACE} \]

2. A window will appear around the function parameters at the bottom of the screen. Press the \[ \text{O} \] and \[ \text{M} \] keys to move the cursor over the parameter to be edited.

3. Using the \[ \text{R} \] keys, enter the desired parameter and press \[ \text{SPACE} \].

Repeat steps 2 - 3 as necessary if additional parameters within the function require editing.

4. Press Apply \[ \text{F2} \] to save the changes to DEP memory.

5. Press the DOWNLOAD \[ \text{F3} \] key to download and save the changes to the weld control. The message “Download Complete” will appear to indicate completion of the change.
Chapter 7: CHANGE TIMER

The Change Timer menu allows the user to connect the DEP-300s to different weld timers on the network. This feature is accessible only when the DEP-300s is connected to either the Global EtherNet or Serial Network, see “Network Communications” on page 29. If the DEP-300s is connected via the Local EtherNet, the Change Timer feature is inaccessible.

The following options are available within the Change Timer Menu by pressing the corresponding keys:

BACK
Press to return back to the Mode Selection Menu
When the DEP-300s has successfully connected to a weld timer, the Mode Selection Menu is displayed. In the example shown below, the DEP-300s is connected to a weld timer identified by IP Address 192.168.0.95 and Welder ID MY_TIMER001.

**CONNECT TO A DIFFERENT WELD TIMER**

When the DEP-300s has successfully connected to a weld timer, the Mode Selection Menu is displayed. In the example shown below, the DEP-300s is connected to a weld timer identified by IP Address 192.168.0.95 and Welder ID MY_TIMER001.
TO CONNECT TO A DIFFERENT WELD TIMER/CONTROL, PERFORM THE FOLLOWING STEPS:

1. From the Mode Selection Menu, press **F5** to CHANGE TIMER.

2. The Timer/Control Selection Menu will appear with a list of multiple weld timers, identified by their IP Address and Welder ID. If the list is empty, press the **F2** SCAN key. The DEP-300s will then scan the network and look for active weld timers/controls.

   Upon completion of the scan, a list of active weld timers/controls will populate the field.
③ Using the \( \downarrow \) and \( \uparrow \) keys, move the cursor to highlight the desired weld timer/control IP Address and Welder ID. Press the \( \text{SPACE} \) key.

④ The DEP-300s will now attempt to connect to the desired weld timer. Upon completion, the Mode Selection Menu will appear, indicating that it is now connected to the new timer. Verify the IP Address and Welder ID on the top of the screen to confirm connection to the new timer/control.

MANUALLY SEARCH FOR A WELD TIMER/CONTROL

This feature is only available when the DEP-300s is connected to the Global EtherNet. If the DEP-300s is connected via the Local EtherNet or the Serial Network, this feature is inaccessible.

To manually add an IP address and search for a weld timer/control on the Global EtherNet, follow the procedure in Chapter 2-Home Menu under “Network Communications” on page 29.
FAQ

HOW DO I UPGRADE DEP300 (EDEP) SOFTWARE?

① Find the DEP’s IP ADDRESS. When the DEP is powered up, it should be in the Home Menu. Press F1(System Settings) and write down the IP Address.

② Change your PC’s IP Address to be one off from the EDEP’s IP Address so they can talk. For example, if the EDEP’s IP address is 89.89.200.249, change the PC’s IP address to 89.89.200.250.
1 Connect the EDEP's 15 pin D-sub cable into the DEP door port. On the back of the door port is an RJ45 EtherNet connector mounted on a PC board. Plug a standard EtherNet cable into the RJ45 connector and plug the other end into the PC's EtherNet port.

2 On the EDEP while in the “System Settings” screen, press F3(Flash DEP). The EDEP will post a message indicating it is waiting for the software.

3 Now run the qularitydownloader.exe file. If you see a pop-up window stating “Couldn't open serial port”, click OK.

4 Select the “Ethernet” tab.

5 Type in the IP Address of the EDEP (written down in step #1).

6 Click the “Browse” button and find the update file, q06905-23_08_28_2015_release.bff. Select it with your mouse and then click “Open”.

7 Click the “Download Application” button.

8 You should briefly see a download status bar.

9 When the download is complete, the EDEP should display a message that it is receiving the data. When complete, it will reboot.

10 After the EDEP reboots, it should be in the Home Menu. Press F1 (System Settings). The EDEP software should read “Q06905-00-23 (date)”. 