

# Alpha Controller User Manual v3.0



#### **Important Safeguards**

For your protection, please read these instructions completely, and keep this manual for future reference. Carefully observe and comply with all warnings, cautions and instructions placed on the equipment or described in this manual.

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### **Getting Started**

This manual is intended to promote proper and safe use and give guidance to owners, employers, supervisors, and others responsible for training and safe use by operators and maintainers. Please contact your Stanley Sales Engineer for further information or assistance on Stanley training or assembly tool operations.

#### 1.1 Warnings and Cautions

taken.

#### Definitions

The safety notices and warnings for protection against loss of life (the users or service personnel) or for the protection against damage to property are highlighted in this document by the terms and pictograms defined here. The terms used in this document and marked on the equipment itself have the following significance:

- **Warning** Indicates that death or severe personal injury **may** result if proper precautions are not taken.
- Caution
- Indicates that property damage may result if proper precautions are not
- Indicates an electrical hazard. This icon appears as a part of a Danger, Warning, or Caution notice.
- Indicates a general hazard. This icon appears as a part of a Danger, Warning, or Caution notice.
- Indicates that eye protection should be worn. This icon appears as a part of a Danger, Warning, or Caution notice.
- Read and understand all the safety recommendations and all operating instructions before operating tools and controllers.
- Indicates an item of special interest.

#### WARNING

#### To Avoid Injury:

- Read and understand all the safety recommendations and all operating instructions before
  operating tools and controllers. Save these instructions for future reference.
- Train all operators in the safe and proper use of power tools. Operators should report any unsafe condition to their supervisor.
- Follow all safety recommendations in the manual that apply to the tools being used and the nature of the work being performed.
- Verify that all warning labels illustrated in this manual are readable. Replacement labels are available at no additional cost from **STANLEY ASSEMBLY TECHNOLOGIES**.

#### **Qualified Personnel**

#### WARNING

#### To Avoid Injury:

- Only allow suitably qualified personnel to install, program, or maintain this equipment and or system.
- These persons must be knowledgeable of any potential sources of danger and maintenance measures as set out in the Installation, Operations, and Maintenance manual.
- This product must be transported, stored, and installed as intended, and maintained and operated with care to ensure that the product functions correctly and safely.
- Persons responsible for system planning and design must be familiar with the safety concepts of automation equipment.

#### 1.2 User Manual Conventions

Underlined text indicates glossary terms. Menu options appear in Arial 10 bold italic.

Dimensions	Width:	6.0 in	152 mm		
	Height:	14.2 in	361 mm		
	Depth:	10.3 in	262 mm		
Weight:		17 lb	7.7kg		
Operating Conditions:	Temperature:	32 to 122 °F (	0 to +50 °C)		
	Humidity:	0 to 95 % nor	n-condensing		
Dower Source:	100 – 120 VAC, 50/60 Hz, 15 service or				
Tower Source.	220 - 240 VAC, 50/60 Hz, 15 service				
Power Consumption:	Stand by:		0.2 A (amperes)		
	Continuous: 1-2.5 kVA		1-2.5 kVA		
Tool Motor Power:	Service Rating:	E02/E_23	E_33/E_34	E44/E45	E55
Consumption	@ 115 VAC:	15A	15A	20A	-
	@ 230 VAC:	10A	10A	10A	16A
	Continuous kVA:	0.3	0.7	1	1.7

#### 1.3 Specifications, Layout and Display



Item	Functional Description
1	Red, Green, Yellow LEDs for Limits Evaluation
2	Display
3	Function Keys with Active Label Above
4	Cursor Keys with Center Button to Expand Lists
5	Maintenance Due and ATC Active LEDs
6	Numeric Keypad to Enter Numbers or Select Options
7	Controller Label and Serial Number
8	Power Switch
9	Power Input
10	USB Port for Data Transfer
11	Optional 24 VDC Input/Output Connector
12	Tool Connector
13	Serial Connectors
14	Optional Device-Net Connector
15	Optional Profibus Connector

16 Ethernet Connector

#### 1.4 Installation Instructions



#### WARNING

#### To Avoid Injury:

- Always wear eye and foot protection when installing equipment.
- Only use equipment and accessories specifically designed to operate with Stanley assembly tools and use them only in the manner for which they are intended.
- Do not install worn, damaged, or modified equipment that may be unsuitable for safe use.
- Train all operators in the safe and proper use of power tools. Operators should report any unsafe condition.
- Store idle tools and accessories in a safe location accessible only by trained persons.
- Disconnect power source (air, electricity, etc.) from tool prior to making adjustments, changing accessories, or storing.
- Prior to operation, always check and test tools and accessories for damage, misalignment, binding or any other condition that may affect operation. Maintenance and repair should be performed by qualified personnel.
- Do not operate tools in or near explosive environments or in the presence of flammable liquids, gases, dust, rain or other wet conditions.
- Keep the work area clean, well lit and uncluttered.
- Keep unauthorized personnel out of the work area.
- Install modules in dry, indoor, non-flammable, and non-explosive environments only.
- Qualified personnel should perform installation and programming. Follow all manufacturer installation instructions, applicable regulatory electrical codes, and safety codes.
- Limit module access to trained and qualified personnel. Lock module cabinets.

#### DC Electric Tools & Controllers:

- Install tools in dry, indoor, non-flammable, and non-explosive environments only Humidity: 0 to 95% non-condensing and Temperature: 32 to 122 °F (0 to +50 °C).
- Installation, maintenance and programming should be performed by qualified personnel.
   Follow all manufacturer installation instructions and applicable regulatory electrical codes and safety codes.
- Tool and controller plugs must match the outlet. This equipment must be earth grounded. Never modify a plug in any way or use any adaptor plugs.
- Avoid body contact with electrically energized surfaces when holding a grounded tool.
- Prior to connecting a power source, always ensure the tool or controller is turned off.
- Limit controller access to trained and qualified personnel. Lock controller cabinets.



#### WARNING

#### ELECTRICAL HAZARD

#### To Avoid Injury:

- Do not use this product near water, for example near a washbowl, wet basement, or the like.
- This product should be located away from heat sources such as radiators or other devices that produce heat.
- This product should not be subjected to vibration or shock or in close contact with water or other liquids.
- To minimize electrical interference, place the module as far away from possible sources of electrical noise, such as arc welding equipment.

1.4.1 Plinth



Plinths are used as wall mount brackets for Alpha Controllers. This allows for easy installation, quick change out and provides for neat cable management.

Plinths and Alphas can be mounted individually for single tool operation or grouped for multiple applications.

Plinths connect to each other with four 10-32 machine screws through openings on the top and right side to threaded openings on the bottom and left side. When plinths are mounted next to each other, the center to center distance between the mounting holes in different plinths is 2" (50.8 mm). When plinths are mounted one above another, the center to center distance between the mounting holes in different plinths is 6" (152.4 mm).

1. Install the Alpha Controller either directly to the wall or to a plinth.

2. Fasteners through four mounting holes secure plinths to a wall or other surface. Plinths can be connected using 10-32 threaded holes on the bottom and left side and through holes on the top and right side.

#### 1.4.2 Controller

1. Make sure the bolts of the barrel-latches [5] on the plinth are retracted. Place the lower flange of the Alpha controller [1] into the lip [2] on the plinth.

2. Align the slot [3] in the flange with the lower mounting-pin [4] on the plinth while placing. Rotate the top of the controller back towards the plinth.

3. Place the openings on the upper flange of the controller [6] over the upper mounting pins [7] on the plinth. Release the bolts on the barrel-latches [5] making sure the bolts enter the two barrels [8] on the controller.

- 4. Connect the Alpha Controller to a power source.
- 5. Connect the tool cable to the Alpha controller and press the power switch on the controller.





#### WARNING

INTEGRATED E-STOP CIRCUIT NOT PRESENT To Avoid Injury: When an Alpha controller connects to a tool where a fault can result in personal injury or substantial damage to property, an E-stop circuit is required. An E-stop circuit must be created in

the external power supply line.

### Programming





The Alpha controller's three navigation and input areas facilitate menu navigation, selection and data input:

- Menu buttons
- Arrows and Toggle button
- Keypad

•

Labels for the four interactive menu buttons [1] change with menu selection. If the label is blank, the button has no function for the current display.

The up/down arrows [2] navigate menu and character selections; the left/right arrows enable backspace and space, as well as navigate between tabs. The toggle button [3] switches between modes and selects/accepts choices (synonymous with *OK* menu button).

The numeric keypad [4] facilitates data input, menu selection (where applicable) and job/task selection when enabled.

### 2.2 Display

2.2.1 Scroll Bar



A scroll bar appears when more items are available than space within the display to allow them to be visible. The up arrow [1] and down arrow [3] direct scrolling. The black/white scroll bar [2] indicates which list items are currently displayed. No scroll bar means all items are currently displayed.

To navigate between menu items, use the up/down arrows or, if available, use the keypad to identify the corresponding menu item number.

#### 2.2.2 Dropdown



A dropdown [1] arrow appears to the right of menu items with multiple choices. To view these choices, first select the menu item using the up/down arrows or, if available, use the keypad to identify the corresponding menu item number. Then, use the toggle button to expand the dropdown. The up/down arrows scroll through the choices and the toggle button selects/accepts the highlighted choice.



A menu tree [1] appears beside related menu items.

Tabs [1] appear at the top when multiple menu selections exist. To navigate between tabs, use the left/right arrows. The active tab is white; inactive tabs are grey.

#### 2.2.5 Character Scrollbar



2.2.4 Tabs

1

This scrollbar enables adding: a-z, A-Z, 0-9, space, \_, -, &, \*, \$, #, @, !, and a period (language and/or field determines character availability). The up arrow [1] and down arrow [3] direct scrolling with the active character [2] displayed between. Use the Alpha Controller's up/down arrows to scroll through character choices. The left arrow backspaces. The right arrow moves one position to the right to input next character. Push toggle button or OK menu button to accept entry.

The following screens contain the character scrollbar option: Job (Name), Job (Barcode ID), Task (Name), Step (Name), System (General), System (Users), System (Date/Time), System (Network), System (Maintain).





P5 1 1

Displays last torque reading and units [2] when a tool is connected. Icons [1] identify controller events (see list below). Specifies current job [3]. The run screen displays unless other programming functions [4] are in use.

Run Display Codes indicate why a tightening cycle shutoffs prior to completion.

Run Display Code	Description
TIME	Tightening time exceeds programmed cycle abort time value
STOP	Spindle stopped by either the operator or other device
125%	Spindle stopped due to torque achieving greater than 125% torque limit for the spindle
FAULT	Precedes a fault described in 2.3
STALL	Spindle in stall status

Alpha Controller Icons Icon Status Locked ₿ ę. Unlocked Ō Busy/working Ð Message waiting A Warning system not operable Force on or off F 8 Stop

#### 2.3 Faults



System Faults: Overcurrent Fault! Logic Voltage Fault!

Position Feedback Fault!

Transducer Span Fault!

Temperature Fault!

Unrecognized Tool! Tool Communications!

Transducer Current Fault!

Transducer Zero Fault!

NO STRATEGY SELECTED!

Can't run the wizard! Unknown Tool!

#### 2.4 Log



From the main menu (run display), press the down arrow to view the log of controller events.

The log lists events by occurrence date and time using the internal clock as set by the user. Events included in the log are rundowns and faults.

The data stored for each rundown includes:

????

The data stored for each fault includes:

????

To access the data, use the up/down cursor keys to scroll. Highlight an event and press the toggle key to view the event's data screen. Use the up/down cursor keys to scroll through the data if there is more than will fit on the screen.

The data cannot be exported from the log screen. This action is performed via the STATS screen under Analyze. See 2.5.6.

#### Description

Password required to make changes Changes possible, automatically re-locks in time Wait Check the run screen Check the run screen Identifies an input/output forced on or off No strategy selected

The display background color in normal operation is white. In the event of a fault, the display background becomes red and the fault description appears on screen.

#### 2.5 Alpha Controller Programming



#### WARNING

#### EXCESSIVE TORQUE CONDITION

#### To Avoid Injury:

- Only trained and qualified personnel should program controllers.
- Never set control limits above the maximum rating of the tool.
- Setting control limits above the maximum rating of the tool can cause high reaction torque.
- Always test for proper tool operation after programming the controller.

The controller uses three main menus to display information and enable programming:

- Setup menu
- Service menu
- Analyze menu

Icon Legend	Icon Description	Navigation
	Menu Buttons	Press to activate menu option noted above button.
Ô	Left/Right Arrow Keys	Navigate tabs as well as backspace and space.
Ĉ	Up/Down Arrow Keys	Scroll through menu selection and character selection.
$\bigcirc$	Toggle Button	Selects option for data input, accepts changes.
123 456 789	Numeric Keypad	Data input and, when applicable, menu selection. Can be used for job/task selection when enabled to do so.

The left column shows the currently defined Alpha Controller settings and menu choices. The Options Screen column shows options for each selection. Screen navigation options appear above each screen.



#### 2.5.1 Setup Menu: 1. Jobs

The **Setup** menu programs the controller to operate a <u>spindle</u> or tool. Settings are saved per <u>Job</u> with optional <u>Task</u> and <u>Step</u> assignments. Most controllers will operate with a single <u>Job</u>, <u>Task</u> and <u>Step</u>. <u>Tasks</u> control tool operation for tightening a fastener which can have one or more <u>steps</u>. <u>Steps</u> are defined by available strategies such as TC/AM (Torque Control, Angle Monitoring). The Wizard can be used to setup a <u>Task</u> for simple rundowns. Creating a name for <u>Jobs</u>, <u>Tasks</u> and <u>Steps</u> is optional but helpful when multiples <u>Jobs</u> and <u>Tasks</u> exist.

2.5.1.1 Wizard Screens

Wizard Screens

**Options Screen** 

The **Wizard** assists with programming the controller to assign a <u>Task</u> which operates a single spindle. To function, the **Wizard** requires a tool to be connected. This example shows Torque & Angle Strategy. Selecting another Strategy affects subsequent screen options. The wizard automatically appears when there are no configured jobs. To access the wizard when jobs exist, choose Setup, 1. Jobs, Manage, 1. Add, then choose before or after selected tab.





Wizard Screens	Options Screen
	WIZHRD-CONDITION     Minimum       Down Target Torque     Eff       Delay Time     0.05       Max Time     5.0       PREV     NEXT       CENCEL     HIZHRD-CONDITION       HIZHRD-CONDITION     HIZHRD       Delay Time     0.05       HIZHRD     0.05       HIZHRD     CENCEL
	HIZHRD-CONDITION     311       Delay Time     0.05 ft       Max Time     E       Up Angle Target     720 gt       PREV     NEXT       CENCEL
	Max Time 5 Up Angle Target 720 H
	ATC Backout Fastener
	Torque Target       Delay Between Steps     0.05       PREV     NEXT       EMIZARD-PRETORQUE     11
	Torque Target 4.375 Delay Between Steps 0.05
Backout Fastener	
	AIC Backout Fastener Fastener Release
	Angle larget H333 Torque Target 0 Speed 1115 PREV NEXT CRINCEL
	Angle larget 1880 Torque Target 9 Speed 9 PREV NEXT CRNCEL
	Torque Target 0 Speed IIIIS PREV NEXT CRNCEL

Wizard Screens	Options Screen
	ATC Backout Fastener Backout Fastener Brastener Release PREV NEXT CRINCEL Speed Angle Target Max Torque HIZARD-RELEASE Max Torque Speed Angle Target Max Torque T7-5 PREV NEXT CRINCEL Max Torque Max Torque T7-5 PREV NEXT CRINCEL
Angle Target 180 Speed 60 Max Torque 3.5 PREV NEXT CRNCEL MizARD-SLOW SEEK 5.51 PREV NEXT CRNCEL MIZARD-SLOW SEEK 5.51 PREV NEXT CRNCEL MAX Torque 3.5 PREV NEXT CRNCEL	
WIZHRD     NIE       Complete!     MIE       PREV     FINISH	

2.5.1.2 Setup: Job Tab	
Job Tab Screens	Options Screens
Tool settings apply to all <u>Tasks</u> .	
SETUP SETUP O SETUP	
	123 456 or 9 769
JOB 1       Name       Barcode Id       Auto Sequence Tasks       YES       EXIT	JOB 1 Name JOB 1 Barcode Id JOB 1 Auto Sequence Tasks YES U
JOB 1 Barcode Id Auto Sequence Tasks YES I Auto Reset Job YES J EXIT MANAGE TASK	JOB 1 Barcode Id Auto Sequence Tasks Auto Reset Job
Auto Sequence Tasks Auto Reset Job Enable Error Proofing EXIT MANAGE TASK*	Auto Sequence Tasks Auto Reset Job Enable Error Proofing NO VI
JOE 1 Auto Sequence Tasks Auto Reset Job Enable Error Proofing NO VE	Joe 1 Auto Sequence Tasks Auto Reset Job Enable Error Proofing



Task Tab Screens	Options Screens
TRSK 1 Threshold Torque Statistical Threshold Disassembly Speed 9999U EXIT MANAGE STEPT BACK	
THESK 1 THESK 1 THESK 1 Statistical Threshold If Disassembly Speed 9999 Disassembly Acceleration 3000 EXIT MANAGE STEPT ERCK	
123         456         769         7	
THSK 1 Disassembly Acceleration SUCE t Cycle Lock-Out 0 Torque Audit Step LAST V EXIT MANAGE STEPV BACK	
THSK 1 Cycle Lock-Out Torque Audit Step Angle Audit Step EXIT MANAGE STEPT BACK	
TASK 1 Torque Audit Step Angle Audit Step LAST - Torque Rate EXIT MANAGE STEP BACK	TRESK 1 Torque Audit Step Angle Audit Step Torque Rate



2.5.1.4 Setup: Step Button (Step 1 - Step 12)

Step Screens (Step 1 – Step 12)

**Options Screens** 

<u>Step</u> settings affect only the active <u>Task</u>. Each strategy selection has different configuration options.



BRCK

EXIT ) (MANAGE)

ŌК

CANCEL

Strategy TC/AM Screens	Options Screens
123 458 709	
STEP 1 -Torque Target Et -High Torque 9999.9 -Low Torque 04 EXIT MANAGE BACK	
STEP 1 -High Torque 9999.9 t -Low Torque 0 -Snug Torque 0 EXIT MANAGE BACK	
STEP 1 -Low Torque -Snug Torque -High Angle EXIT MANAGE BACK	
123 458 789 • •	
STEP 1 -Snug Torque 01 -High Angle 9999.9 -Low Angle 04 EXIT MANAGE BACK	
STEP 1 -High Angle 9999.3 -Low Angle 0 -Angle Bailout 9999.9 EXIT MANAGE BACK	



Strategy TC/AM Screens	Options Screens
	STEP 1         -ATC Starting Torque %       20 f         -ATC Ending Torque %       10 u         -ATC Ending Speed %       10 u         EXIT       MANAGE       EACK         STEP 1       -ATC Starting Torque %       20 f         -ATC Starting Torque %       20 f         -ATC Ending Torque %       20 f         -ATC Ending Torque %       75 o         -ATC Ending Speed %       10 u         EXIT       MANAGE       EACK
STEF 1 Soft Stop Current Off Time Current Hold Time EXIT MRNAGE EXIT MRNAGE	STEP 1 -Current Off Time -Current Off Time -Current Hold Time -Current Hold Time -Current Hold Time -Current Hold Time -Current Hold Time -Current Ramp Time
STEP 1 -Speed -Power -Acceleration EXIT MINNAGE ERCK	
STEP 1 -Power -Acceleration -Abort Timer EXIT MRNAGE ERCK	



Strategy AC/TM Screens	Options Screen
STEP 1 -Snug Torque Et -Angle Target 0 -High Angle 9999.94 EXIT MANAGE BACK	
STEP 1 -Angle Target Et -High Angle 9999.9 -Low Angle 04 EXIT MANAGE BACK	
STEP 1 -High Angle 9999-9 -Low Angle 0 -High Torque 9999-9 EXIT MANAGE BACK	
123 458 789 • •	
STEP 1 -Low Angle Ent -High Torque 9999.9 -Low Torque 04 EXIT MANAGE BACK	
STEP 1       -High Torque       -Low Torque       Of       -Torque Bailout       9999.9µ       EXIT	



Strategy AC/TM Screens	Options Screen
	STEP 1         -Soft Stop         -Current Off Time         -Current Hold Time         -Current Hold Time         EXIT         MANAGE         EXIT         MANAGE         EXIT         -Current Off Time         -Current Off Time         -Current Hold Time         -Current Ramp Time         EXIT         STEP 1         -Soft Stop         STEP 1         -Soft Stop         -Speed         9999         -Power         100 µ         EXIT         MANAGE
123         458         789         789         -Speed         -Power         100         -Acceleration         3000         EXIT	
STEP 1 -Power -Acceleration -Abort Timer EXIT MENAGE BFICK	
STEP 1 Abort Timer Delay Between Steps Accumulate Angle EXIT MANAGE BACK	
STEP 1 A 50 A 50	

Strategy AC/TM Screens	Options Screen
STEP 1 Abort Timer 10 Delay Between Steps 0 Accumulate Angle NOTE EXIT MANAGE BACK	STEP 1 -Abort Timer 10 -Delay Between Steps 2 -Accumulate Angle YES 2 OK CENCEL
2.5.1.4.3 Strategy AC/TC	1
Strategy AC/TC Screens	Options Screen
Step settings affect only the active <u>Task</u> .	
STEP 1 Name STEP 1 Strategy HETCH Torque Target OH EXIT MANAGE BACK	STEP 1 Name Strategy -Snug Torque OK CRNCEL
I   I <td></td>	
STEP 1 -High Torque -Low Torque -Torque Bailout STEP 1 B999.9 EXIT MENERGE BFCK	
STEP 1 -Low Torque -Torque Bailout -Snug Torque 04 EXIT MENERGE BECK	

Strategy AC/TC Screens	Options Screen
123 458 709	
STEP 1 -Torque Bailout 9999.91 -Snug Torque 0 -Angle Target 04 EXIT MANAGE EACK	
123 456 709 10 STEP 1	
Angle Target 0 High Angle 99999.9	
123 456 709	
STEP 1 Angle Target En High Angle 9999.9 Low Angle 04 EXIT MANAGE EACK	
123 456 709	
STEP 1 High Angle 9999.3 ft Low Angle 0 Angle Bailout 9999.9 U EXIT MANAGE EACK	
STEP 1 -Low Angle Sh -Angle Bailout 99999.9 -Downshift Mode DISABLED - EXIT (MANAGE) BACK	

Strategy AC/TC Screens	Options Screen
I       I         I	
STEP 1 -Downshift Mode -Downshift Torque Downshift Speed EXIT MANAGE ERCK	STEP 1 Downshift Mode Soft Stop Current Off Time OK CRNCEL
	STEP 1       Downshift Mode       -Soft Stop       -Current Off Time       0.001 µ       EXIT
	STEP 1         Downshift Mode         Downshift Torque         Downshift Speed         Downshift Mode         EXIT         MANUAL         Downshift Mode         MANUAL         Downshift Speed         Downshift Mode         MANUAL         Downshift Speed         Downshift Mode         MANUAL         Downshift Speed         Ownshift Mode         EXIT         MANUAL         Downshift Mode         MANUAL         Downshift Speed         Ownshift Speed         Downshift Speed         Downshift Speed         Downshift Speed         EXIT         MANUAL
	STEP 1         -Downshift Mode         -ATC Starting Torque %         -ATC Ending Torque %         -ATC Ending Torque %         -ATC Starting Torque %         -ATC Starting Torque %         -ATC Starting Torque %         -ATC Ending Torque %         -ATC Ending Torque %         -ATC Ending Speed %         STEP 1         -ATC Ending Torque %         -ATC Starting Torque %         STEP 1         -ATC Starting Torque %         STEP 1         -ATC Starting Torque %         -ATC Starting Torque %         -ATC Starting Torque %         -ATC Ending Torque %         -ATC Ending Torque %         -ATC Ending Torque %         -ATC Ending Speed %         -ATC Ending Speed %         -ATC Ending Speed %         -ATC Ending Speed %

Strategy AC/TC Screens	Options Screen
	ATC Starting Torque % 20 f ATC Ending Torque % 75 c ATC Ending Speed % 10 c EXIT MANAGE EACK
Soft Stop Current Off Time Current Hold Time EXIT MANAGE EXIT CHANAGE EXIT	STEP 1 Soft Stop -Current Off Time -Current Hold Time -Current Hold Time -Current Off Time -Current Off Time -Current Hold Time -Current Hold Time -Current Hold Time -Current Off Time -Current Off Time -Current Off Time -Current Hold Time -Current Ramp
Image: Step 1         Image: Step 1 <td< td=""><td></td></td<>	

Strategy AC/TC Screens	Options Screen
Accumulate Angle	
Abort Timer 101 Delay Between Steps 5 Accumulate Angle NO + EXIT MANAGE 6ACK	
<b>\$</b>	<b>\$</b>
Abort Timer 10 -Abort Timer 10 -Delay Between Steps 0 Accumulate Angle NOT EXIT MANAGE BACK	Abort Timer 10 -Abort Timer 10 -Delay Between Steps VES Accumulate Angle VES OK CENCEL
2.5.1.4.4 Strategy BACK (Backoff)	
Strategy BACK (Backoff) Screens	Options Screen
Step settings affect only the active <u>Task</u> .	
<b>Ô</b>	<u></u>
STEP 1       Name       Strategy       Strategy       -Snug Torque       EXIT	STEP 1 Name TCAM R Strategy ACTM ACTC Torque Target OK CRNCEL
STEP 1 Snug Torque Entropy Angle Target 0 High Angle 99999.9 EXIT MANAGE BACK	

Strategy BACK (Backoff) Screens	Options Screen
123 458 709	
STEP 1 -Angle Target Et -High Angle 9999.9 -Low Angle 0y EXIT MANAGE BACK	
STEP 1 -Low Angle Et -Torque Target 17.5 -High Torque 35 EXIT MANAGE BACK	
STEP 1 -Low Angle Of -Torque Target O -High Torque 9999.90 MANAGE BACK	
123 458 789 • •	
STEP 1 -Torque Target <u>Et</u> -High Torque <u>9999.9</u> -Low Torque <u>0</u> EXIT MANAGE BACK	
STEP 1 -High Torque 9999.3 -Low Torque 0 -Torque Bailout 9999.9 EXIT (MENRGE) BRCK	


Strategy BACK (Backoff) Screens	Options Screen
	STEP 1         -Current Off Time         -Current Hold Time         -Current Ramp Time         0.075;         EXIT         MANAGE         STEP 1         -Soft Stop         -Current Off Time         -Current Hold Time         0.001;         -Current Off Time         -Current Hold Time         -Current Hold Time         -Current Hold Time         -Current Hold Time         -Current Ramp Time         STEP 1         -Soft Stop         -Soft Stop         -Speed         9999;         -Power         100;         EXIT
STEP 1 STEP 1 Speed Power Acceleration EXIT MRNAGE BRCK	
STEP 1 -Power -Acceleration -Abort Timer EXIT MENAGE BRCK	
STEP 1 -Acceleration -Abort Timer -Delay Between Steps EXIT MANAGE BACK	
STEP 1 -Abort Timer -Delay Between Steps -Accumulate Angle EXIT MENAGE BECK	

Strategy BACK (Backoff) Screens	Options Screen
Abort Timer 10t -Abort Timer 10t -Delay Between Steps 0 -Accumulate Angle NO t EXIT MANAGE BACK	
STEP 1       Abort Timer       Delay Between Steps       Accumulate Angle       EXIT	Abort Timer 10t Delay Between Steps VEST Accumulate Angle VEST

#### 2.5.1.4.5 Strategy RATE

Strategy RATE Screens Options Screen

Step settings affect only the active <u>Task</u>. Torque rate strategy (<u>Torque Average</u> and <u>Angle</u> <u>Interval</u>) configuration is set in the <u>Task</u> tab.



Strategy RATE Screens	Options Screen
123 456 709	
STEP 1 -Low Torque 9999.9 -Torque Bailout 9999.9 -Snug Torque 04 EXIT (MANAGE) EACK	
123       456       769       100	
-Snug Torque 8.75 -High Angle 9999.90 EXIT (MRNRGE) ERCK	
STEP 1 -Snug Torque -High Angle -Low Angle EXIT MANAGE EACK	
STEP 1 -High Angle 999999 -Low Angle 0 -Angle Bailout 999999 EXIT MANAGE EACK	
STEP 1 -Low Angle Bailout 9999.9 -Downshift Mode DISABLED - EXIT MANAGE BACK	



Strategy RATE Screens	Options Screen
	STEP 1       0.001 ft         -Current Off Time       0.001 ft         -Current Hold Time       0.025 tt         -Current Ramp Time       0.075 tt         EXIT       MANAGE         STEP 1       Soft Stop         -Soft Stop       9999 tt         -Speed       9999 tt         -Power       100 tt         EXIT       MANAGE
I       2         I       2         I       5         I	
STEP 1 -Power -Acceleration -Abort Timer EXIT MRNAGE ERCK	
123         458         769         769         -Acceleration         -Abort Timer         -Abort Timer         -Delay Between Steps         01         EXIT	
STEP 1 -Abort Timer -Delay Between Steps -Accumulate Angle EXIT MANAGE ERCK	

Strategy RATE Screens	Options Screen
123         456         769         769         -Abort Timer         -Abort Timer         101         -Delay Between Steps         -Accumulate Angle         NO T         EXIT	
<b>Ş</b>	
Abort Timer -Abort Timer -Delay Between Steps -Accumulate Angle EXIT MANAGE BACK	Abort Timer 10 -Abort Timer 10 -Delay Between Steps No -Accumulate Angle YES -Accumulate Angle OK CENCEL

#### 2.5.1.4.6 Strategy YIELD

Strategy YIELD Screens

**Options Screen** 

Step settings affect only the active <u>Task</u>. Torque rate strategy (<u>Torque Average</u> and <u>Angle</u> <u>Interval</u>) configuration is set in the <u>Task</u> tab.



Strategy YIELD Screens	Options Screen
123 458 789	
STEP 1 Low Torque Step Torque Bailout 99999.9 Snug Torque OU EXIT MANAGE EACK	
STEP 1 -Torque Bailout 9999.9 -Snug Torque 8.75 -High Angle 9999.9 EXIT MANAGE BACK	
STEP 1 -Snug Torque Int -High Angle 99999.9 -Low Angle Out EXIT MANAGE EACK	
123 458 789	
STEP 1 High Angle 9999.3 Low Angle 0 Angle Bailout 9999.9 EXIT MANAGE BACK	
STEP 1 -Low Angle International Internation	



Strategy YIELD Screens	Options Screen
	STEP 1 -Current Off Time 0.001 f -Current Hold Time 0.025 c -Current Ramp Time 0.025 c EXIT MANAGE EACK STEP 1 -Soft Stop 100 f -Speed 9999 c -Power 100 c EXIT MANAGE EACK
1 2 3         4 5 8         7 8 9         7 8 9         -Speed         -Power         100 -         -Acceleration         3000 -         EXIT	
STEP 1 -Power -Acceleration -Abort Timer EXIT MANAGE EHCK	
STEP 1 -Acceleration -Abort Timer -Delay Between Steps BRCK BRCK	
STEP 1 -Abort Timer -Delay Between Steps -Accumulate Angle EXIT MANAGE BACK	

Strategy YIELD Screens	Options Screen
Abort Timer 10 Delay Between Steps 2 Accumulate Angle NO V EXIT (MANAGE) EACK	
Ô.	
Accumulate Angle	Abort Timer 10 -Abort Timer 10 -Delay Between Steps No -Accumulate Angle YES -Accumulate Angle OK CRNCEL

#### 2.5.1.4.7 Strategy AC/TA

Strategy AC/TA Screens

**Options Screen** 

Step settings affect only the active <u>Task</u>. Torque rate strategy (<u>Torque Average</u> and <u>Angle</u> <u>Interval</u>) configuration is set in the <u>Task</u> tab.

STEP 1 Name STEP 1 Strategy EDTRO Strategy EPCK	STEP 1 Name Strategy Yield Target OK CENCEL
STEP 1 -Snug Torque -Angle Target High Angle EXIT MANAGE EACK	
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	

Strategy AC/TA Screens	Options Screen
STEP 1         -High Angle         -Low Angle         -High Torque         9999.94         EXIT         MANAGE	
-Low Angre	
STEP 1 -High Torque -Low Torque -Max Torque Bailout 9999.94 EXIT MANAGE BACK	
STEP 1 -Low Torque -Max Torque Bailout -Min Torque Bailout EXIT MANAGE EACK EACK EACK	
STEP 1 Max Torque Bailout 999956 Min Torque Bailout 0 Downshift Mode MANUAL V EXIT MANAGE EACK	



Strategy AC/TA Screens	Options Screen
	STEP 1 -Current Off Time 0.001 f -Current Hold Time 0.025 -Current Ramp Time 0.025 EXIT MANAGE EACK STEP 1 -Soft Stop 0.0 f -Speed 9999 -Power 100 F EXIT MANAGE EACK
123         458         789         789         -Speed         -Power         100         -Acceleration         3000         EXIT	
STEP 1 -Power -Acceleration -Abort Timer EXIT MANAGE EHCK	
STEP 1 Acceleration Abort Timer Delay Between Steps EXIT MANAGE BACK	
STEP 1 -Abort Timer -Delay Between Steps -Accumulate Angle EXIT MANAGE BACK	

Strategy AC/TA Screens	Options Screen
STEP 1 Abort Timer 10 Delay Between Steps 0 Accumulate Angle NO V EXIT MANAGE BACK	
<b>Ô</b>	
Abort Timer 10 Delay Between Steps 0 Accumulate Angle EACK	Abort Timer 10 -Abort Timer 10 -Delay Between Steps No -Accumulate Angle YES -Accumulate Angle OK CENCEL

2.5.1.5 Setup: Manage

1 3	
Manage Screens	Options Screen

**Manage** enables active tab settings to be added, deleted, and/or copied to the clipboard and pasted into another tab. The "Nothing to Paste" error indicates an attempt to paste information to the wrong tab type.

(MANAGE)	I HPC 2.Delete 3.Copy 4.Paste ₩
2.5.1.6 Setup: Exit	
Exit Screens	Options Screen
Programming changes are stored after exiting cu	urrent menu.
EXIT MANAGE TASKY	JOB 1 Name JOB 1 Auto SequeSave changes? YES Auto Reset Job YES YES NO CRINCEL



Communication Screens	Options Screen
COM Port 1 COM Port 2 EXIT	COM Port 1 COM Port 2 COM Port 2 BARCODE PRINTER TOYOTA COM Port 1 COM Port 1 COM Port 1 COM Port 1 COM Port 2 PRINTER TOYOTA PRINTER TOYOTA PRINTER TOYOTA COM Port 1 COM PORT 2 COM PORT 1 COM PORT 1 COM PORT 1 COM PORT 2 COM PORT 1 COM PORT 1 COM PORT 1 COM PORT 2 COM PORT 2 COM PORT 1 COM PORT 2 COM PORT 2 COM PORT 1 COM PORT 2 COM PORT 2 COM PORT 1 COM PORT 1 COM PORT 2 COM PORT 2 COM PORT 2 COM PORT 1 COM PORT 2 COM PORT 1 COM PORT 2 COM PORT 2 COM PORT 2 COM PORT 2 COM PORT 1 COM PORT 2 COM COM COM COM COM COM COM COM COM COM
123         456         769         7	
TCPRATERY SERIAL PROS DPEN TC TOYOTA PI Test Mode Disabled. Rundown Angle Step 1 Final Angle Step 1 EXIT	
Server IP Port Time Out	
PFCS COPENIES DE C	

Communication Screens	Options Screen
123       456       709       10       Port       10       Cell       11       Buffer while off line       00	
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
IIIIII       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
SERVER IP Port 6547 Cell 1t	
456   709   709   701   6547   Cell   Station   1	

Communication Screens	Options Screen
Port 6547 t Cell 1 Station 1 EXIT	
Port 6547 t Cell 1 Station Exit	

#### 2.5.3 Setup Menu: 3. Other

Other Screens	Options Screen
Programming changes are stored after exiting cu	urrent menu.
SETUP       1.5 []         1. Jobs       2.6 Communications         2. Communications       3.5 []         3. Other       4.Full Backup/Restore         4. Full Backup/Restore       1         OK       CRNCEL	
GENERAL USERS DUTRUITS IN INPUTS IN Name DISABLED COUNT UP U Count Mode COUNT UP U OK CANCEL	
<b>Ô</b>	
GENERAL USERS COUTPUTED TO Keypad Mode DISABLED T Count Mode COUNT UP T Stop/Abort within Limits OK T EXIT	GENERAL USERS OUTROMS INFOMS IN Keypad Mode <b>DISABLED</b> Count Mode Job SELECT Stop/Abort within LPART ID

Other Screens	Options Screen
GENERAL USERS COUTPUTS TRADUTS TO Keypad Mode DISABLED T Count Mode COUNT UP Stop/Abort within Limits OK T	GENERAL USERS COUTPUTS THE Keypad Mode DISABLED TH Count Mode COUNT UP Stop/Abort within Limon Down U
GENERAL INVSERSION COUTRUITS INTRUMISION TO Keypad Mode DISABLED T Count Mode COUNT UP S Stop/Abort within Limits OK S EXIT	GENERAL USERS COUTRUITS CHRUITS
CERNERAL USERS COUTRUITS TNRUTS	CENERAL USERS OUTPUTS LUPUTS I USER NAME USER CENERAL USERS OUTPUTS CK CANCEL
	SHILLEPAR       MENRAGE       USAUXISE         USAUXISE       J. Add         OK       CENNCEL         SHILLEPAR       USER NAME         USAUXISE       USER N





Other Screens	Options Screen
	CENERAL USERS OUTPUTS INRUMENTS
	GENERAL USERS OUTPUTS INPUTS TF MFB (E) - 1 SNUG ACHIEVED CYCLE STOPPED (F) - 0 STEP BIT (G) - U OK CRNCEL
EGENERREUI USERS         OUTPUTS USERS           •         •           •         •           •         •           •         •           •         •           •         •           •         •           •         •           •         •           •         •           •         •           •         •	GENERAL USERS OUTPUTS INPUTS IN CYCLE JOB SELECTED DISASSEMBLY DETECTED (H)-Q
EXIT CONFIG	
	TASK COMPLETE TASK SELECTED BIT JOB SELECTED BIT OK CRINCEL
	TORQUE OK TORQUE HI TORQUE LOW ANGLE OK CRNCEL
	ANGLE HI ANGLE LOW CYCLE ABORTED STOPPED OK CRNCEL
	FRULTED     (F)       PM     (F)       PM     (G)       START TRIGGER     (H)
	MFB (F) - 1 SNUG ACHIEVED CYCLE STOPPED STEP BIT



Other Screens	Options Screen
	Ideneration       USERS       OUTPUTS       EXAMPLES         TORQUE       HI       (H)       (H)         TORQUE       LOW       (H)       (H)         TORQUE       LOW       (K)       (H)         ANGLE       OK       CRNCEL         Ideneration       HUSERS       OUTPUTS       EXAMPLES         Ideneration       HUSERS       OUTPUTS       EXAMPLES         ANGLE       LOW       (H)       (H)         ANGLE       LOW       (H)       (H)         CYCLE       ABORTED       (H)       (H)         STOPPED       USERS       OUTPUTS       EXAMPLES         Ideneration       USERS       OUTPUTS       EXAMPLES         FEQUETED       (H)       (H)       (H)         READY       (H)       (H)       (H)         START       TRIGGER       (K)       (H)         OK       CENCEL       OK       CENCEL         Ideneration       USERS       OUTPUTS       EXAMPLES         OK       CENCEL       (K)       (H)         OK       CENCEL       (K)       (H)         OK       CENCEL       (K)       (H) </th
<u>A</u>	
	ANGLE HI (H) - A ANGLE LOW CYCLE ABORTED - STOPPED (K) - U OK CRNCEL
	MFB (H)



Other Screens	Options Screen
	GENERRU: USERS: OUTRUITS: INPUTS -  L
·   M   · · · · · · · · · · · · · · · ·	-   M   GNDRE START SELECT JOB -   P   SELECT TASK
	Image: Stop     Image: Stop     Image: Stop       Image: Stop     Image: Stop
	Image: Constraint of the second se
	GENERAL USERS (OUTRUITS) INPUTS
	IN DOB VERIFY BIT RESET RESULT STATUS IN RESET RESULT STATUS IN REVERSE START IN DISABLE TOOL
Ô	Ô
SINPUTS MEE TONES TOOL  N	IGENERRAL     IUSERSI (DUITRUITS) INPUTS       -  N      IGNORE       -  P      START       SELECT JOB     IO       -  R      SELECT TASK       OK     CRNCEL
	Implies     Implies     Implies     Implies       Implies     Implies     Implies
	IGENERRE USERS TOUTRUMS INPUTS



Other Screens	Options Screen
	Image: State of the state
8	
GENERAL USERS OUTPUTS INPUTS	GENERAL USERS OUTPUTS INPUTS
	GENERRU USERS (DUTRUTS) INPUTS
	Image: State of the state o
	GENERAL USERS OUROUS INPUTS
	GENERAL USERS OUROUS INPUTS
IGENERALUM HUSERSHI IDUNTRUMSH INPUTS	Image: Second state
	GENERALES EUSTERSEN (OUNRUMEN) INPOTS
	Igeneration     Imputs     Imputs       Isable     Task     Imputs       It     Isable     Task       It     Isable     Job       It     It     It







Other Screens	Options Screen
Population	
Population 25 Subgroup Size 2 EXIT	
Time EXIT	
123 458 709	
TONES         TODU         STRATS         CLOCK           Time         20:26:40         1           Date         17/2008         1	

2.5.4 Setup Menu: 4. Full Backup/Restore



Full Backup/Restore Screens	Options Screen
BRCKUP/RESTORE Up One Level EXIT BRCKUP (RESTORE) DEFRULTS	ERCKUP SHVE SHVE SHVE SHVE SHVE CHNCEL SHVE CONDELEY Complete!
	PRESTORE         *. Up One         RESTORE         *. Up One         Restore         *. Up One         Pre you sure?         Yes         No         To select a file, use the up and down arrow keys to scroll through list. To change directories, highlight "Up One Level" and then press the center button.
	DEFRULTS PACE OF PHOTOPH The Up One ELORD DEFRULTS Charles you sure? YES NO The default button loads current software factory defaults.
2.5.5 Service	
2.5.5.1 Tool	
The edemeter increments after every in cycle	Uptions Screen
	I-Tool 2. Controller
SETUP (SERVICE) (ANALYZE)	



#### 2.5.5.2 Controller

Controller Tab Screens	Options Screen
The odometer increments after every in cycle.	
	SERVICE 1. Tool 2. Controller OK CRNCEL
<b>Ô</b>	
ABOUT     UPDATE       Controller     1       -Model     1       -Serial     0       EXIT     0	
-Serial -Software Version -Servo Version	
Ô.	
EXIT UPDATE	

#### 2.5.6 Analyze

2.5.6 Analyze	
Diag Screens	Options Screen
<b>Diag</b> displays tool and controller diagnostic information, statistics, traces and I/O status.	
- Diag Screens	Options Screen
--	---
TODU FRANCE 1/0 Inputs -Q000000000000000000000000000000000000	When forcing I/O changes during an operation, the system provides a warning first.
$\underline{\text{Clear}} = \text{off, Dark} = \text{on}$	Τ
Diag Screens – STATS Button	Options Screen
RESULTS ( CAR ( CAR)	
RESULTS: CAP REREDRM: CAM	
RESULTS CAP PERFORM CAME	
NO DATA!	
EXPORT	123    456    789    200    PRESURVE    EXPORT CSV FILE    Incondown Data    2.Fault Event Data    OK

# User Manual



# **QPM DC Electric Tools**

This chapter is intended to promote proper and safe use and give guidance to owners, employers, supervisors and others responsible for training and safe use by operators. DC Electric tools from STANLEY ASSEMBLY TECHNOLOGIES are intended for use in industrial threaded fastening or precision position and or adjustment applications only. Some instructions may not apply to all tools. Please contact your Stanley Sales Engineer for information or assistance on Stanley training for assembly tool operation.

### 3.1 Tool Specifications

Operating Conditions Temperature Humidity 32 to 122 °F (0 to +50 °C) 0 to 95 % non-condensing

Noise Level: A-weighted emission sound pressure level at the work station < 70dBA (ref  $20\mu$ Pa) as determined according to ISO 15744-2002.

Vibration Level: Weighted root mean square acceleration value at the handle  $< 2.5 \text{ m/s}^2$  as determined according to ISO 8662.

### 3.2 Operator Protection



### WARNING

- ROTATING EQUIPMENT To Avoid Injury:
- Always wear eye and foot protection when operating, installing, or maintaining power tools, and when in areas where power tools are being used, maintained, or installed. Some applications may require the use of safety glasses and face shields. Use eye protection that conforms to ANSI Z87.1.[3] and ANSI Z41-PT99M I/75 C/75.
- Always stay alert when operating tools and/or their accessories. Do no operate tools and/or their accessories while tired, under the influence of drugs, alcohol or any other mind-altering substance.
- Repetitive work motions or vibration may be harmful to your hands, arms, shoulders or back.
- Use suitable protective equipment and work methods whenever an application presents a hazard.

#### **Repetitive Motion**

The use of power tools may involve highly repetitive motions of the fingers, hands, wrists, and shoulders. These repetitive motions can lead to cumulative trauma disorders (CTD). Many personal and workplace factors can contribute to these disorders.

Currently available data have identified the following risk factors. These risk factors are not necessarily causation factors of CTDs. The mere presence of a risk factor does not necessarily mean there is excessive risk of injury. Generally, the greater the exposure to a single risk factor or combination of factors the greater the risk for CTDs.

- Forceful exertions and motions
- Extreme postures and motions
- Repetitive exertions and motions
- Intended duration of exertion, postures, motions, vibration, and cold
- Insufficient rest or pauses
- Work organization risk factors
- Environmental risk factors

These risk factors span job design and content, operator training, work method, work pace, work environment, proper tool selection and other work place factors beyond the control of the tool

manufacturer. Tool owners and employers should analyze jobs for all of the risk factors identified above and take appropriate action.

Some measures which may reduce the risk of CTDs:

- Use minimum hand grip force consistent with proper control and safe operation.
- Keep wrists as straight as possible.
- Avoid repetitive movements of the hands and wrists.
- If wrist pain, hand tingling, numbness, or other disorders of the shoulders, arm, wrist or finger occur; notify supervisor, discontinue task, reassign user to a different job; if relief is not found contact experts skilled in treating such disorders.

Wrist supports, torque reaction devices, and balancers should be used if it can be determined that such devices can reduce the risk of repetitive motion disorders.

#### 3.2.1 Hearing Protection

Power tool operators and adjacent personnel may be exposed to excessive sound levels. The tool in use is generally only one of many sources of noise that an operator experiences. Other tools and machines in the area, joint assembly noise, work processes, and other ambient noise sources all contribute to the sound level operators are exposed to.

The actual sound level an individual is exposed to and the individual's exposure time over the work day are important factors in determining hearing protection requirements. Worker sound level exposure can only be determined at the job site and is the responsibility of tool owners and employers.

Measure worker sound level exposure and identify high-risk noise areas where hearing protection is required.

Follow federal (OSHA), state or local sound level statues, ordinances and or regulations.

#### 3.2.2 Vibration

Power tools can vibrate during use. To minimize the possible effects of vibration:

- Keep hands and body dry.
- Avoid anything that inhibits blood circulation such as tobacco, cold temperatures and certain drugs.
- Operators should notify their employer when experiencing prolonged symptoms of pain, tingling, numbress or blanching of the fingers.
- Wear vibration damping gloves if it can be determined that they reduce the risk of vibration disorders without introducing other hazards.

#### 3.2.3 Breathing Protection

Respirators shall be used where contaminants in the work area present a hazard.

#### 3.3 Tool Installation



#### WARNING

#### To Avoid Injury:

- Always wear eye and foot protection when installing equipment.
- Only use equipment and accessories specifically designed to operate with Stanley assembly tools and use them only in the manner for which they are intended.
- Do not install worn, damaged, or modified equipment that may be unsuitable for safe use.
- Train all operators in the safe and proper use of power tools. Operators should report any unsafe condition.
- Store idle tools and accessories in a safe location accessible only by trained persons.
- Disconnect power source (air, electricity, etc.) from tool prior to making adjustments, changing accessories, or storing.
- Prior to operation, always check and test tools and accessories for damage, misalignment, binding or any other condition that may affect operation. Maintenance and repair should be performed by qualified personnel.
- Do not operate tools in or near explosive environments or in the presence of flammable liquids, gases, dust, rain or other wet conditions.

- Keep the work area clean, well lit and uncluttered.
- Keep unauthorized personnel out of the work area.

#### DC Electric Tools & Controllers:

- Install tools in dry, indoor, non-flammable, and non-explosive environments only Humidity: 0 to 95% non-condensing and Temperature: 32 to 122 °F (0 to +50 °C).
- Installation, maintenance and programming should be performed by qualified personnel.
  Follow all manufacturer installation instructions and applicable regulatory electrical codes and safety codes.
- Tool and controller plugs must match the outlet. This equipment must be earth grounded. Never modify a plug in any way or use any adaptor plugs.
- Avoid body contact with electrically energized surfaces when holding a grounded tool.
- Prior to connecting a power source, always ensure the tool or controller is turned off.
- Limit controller access to trained and qualified personnel. Lock controller cabinets.

Turn controllers off when attaching tools.

Stanley electric tools must be connected to a controller to operate. To ensure superior performance and safe operation, use a Stanley controller specifically designed for each tool. These instructions are specific to Stanley Electric Tools when used with Stanley Electric Tool Controllers and accessories. Some features may not be applicable, performance may be degraded and some safety systems may not be available when tools are connected to non-Stanley controllers and accessories.

#### 3.3.1 Sockets and Adapters

Use only industrial grade sockets and adapters (power bit and power or impact socket type).

Replace worn or damaged sockets that are unsuitable for safe operation immediately.

Always ensure drive socket is fully seated and locked into position before connecting power to tool.

#### 3.3.2 Suspension Devices

Tool suspension devices or bails help support the weight of the tool during tightening operations. Attach these devices securely and periodically inspect them for damage or loosening.

#### 3.3.3 Cable Installation

### WARNING



ELECTRICAL HAZARD To Avoid Injury:

- Never use a tool with a damaged cable.
- Never abuse a cable, carry a tool by its cable, hang a tool by its cable, or pull on a cable to disconnect it from the tool or the controller.

To ensure superior performance and safe operation, use the Stanley cables specifically designed to operate these tools.

Never use a tool with a damaged cable. Never abuse a cable, carry a tool by its cable or pull a cable to disconnect it. Also, keep the cord away from heat, sharp edges, or moving parts.

Use cables of appropriate length (60M maximum) for each application; position and or suspend them in such a way as to prevent tripping and cable damage, and to provide good work area maneuverability.

### 3.4 QPM Tools

#### 3.4.1 Display and Multiple Function Button for Hand Held Tools

Handheld QPM tools have a display and a multiple function button. Two sets of lights [3 and 7] indicate tool status. Two blue lights indicate tool rotation direction, disassembly [1] or assembly [2]. A single multiple function button [5] can change tool direction and or <u>tasks</u>. When the button is used to select the <u>task</u>, one of two orange indicators [4 or 6] illuminates to show the active <u>task</u>. EA tools have four sets of lights [3 and 7] and an LED [8] that indicates when the tightening cycle count exceeds the PM limit.



Display for EA23L to EA34L (lever) Models

#### 3.4.2 MFP Mode

The *MFP Mode* configures the multiple function button for handheld QPM tools. The button can be configured to operate-in any of the following modes.

Disable (default)	The button does nothing. Pressing the button causes the tool alarm to "beep" once. Only the assembly blue light [2] illuminates.
Reverse (Disassembly)	Pressing the button toggles between assembly and disassembly and illuminates the appropriate blue light [1] or [2]. All tool status lights [3] and [7] flash when the tool is in disassembly mode.
Task Select	Pressing the button toggles between <u>tasks</u> and illuminates the appropriate orange light [6] or [4].
Arm	Pressing the button arms (activates) the start function but does not start the tool. The blue assembly light [2] comes on to show that the tool is armed.
Reset Reject	Pressing the button stops the reject tone.

#### 3.4.3 Tool Memory

QPM tools have an onboard tool memory that stores tool identification, calibration factors and tightening cycle counters. Memory parameters include:

- Model Number
- Serial Number
- Torque Cal (calibration) factor
- Angle Cal (calibration) factor
- Tightening cycle counters

#### 3.4.4 Tightening Cycle Counters

QPM tools have onboard counters that record the number of tightening cycles completed by the tool.

- Master Counter. Records the total number of tightening cycle completed.
- *Cycle Counter.* Records the number of tightening cycles completed since the last time it was reset.
- *PM Counter*. Records the number of tightening cycles completed since the last time it was reset.
- *PM Threshold*. When the PM Counter exceeds the PM Threshold (Limit), the controller provides a maintenance alert.

Each time the controller is turned on, it reads the tightening cycle counters.

#### 3.5 Tool Operation



#### WARNING

#### ROTATING SPINDLE To Avoid Injury:

- Always wear eye and foot protection when operating and when in areas where power tools are being used.
- Keep all body parts and clothing away from the rotating end of the tool. Dress properly. Do not wear loose-fitted clothing or jewelry.

#### TORQUE REACTION FORCE

#### To Avoid Injury:

- Be alert and maintain good balance, footing, and posture at all times in anticipation of the tool's torque reaction. Do not over-extend or over-reach.
- Be prepared for the change in direction and or a higher reaction force when a tool is in reverse.
- The start lever should be positioned to avoid trapping the operator's hand between the tool and the work piece.

#### TOOL MAY NOT SHUT OFF

#### To Avoid Injury:

- If the tool does not shut off at the end of the tightening cycle, contact the person responsible for tool installation or repair. Note: When the tool does not shut off, a stall condition occurs. A stall condition can cause a higher than expected torque reaction impulse.
- Ensure tool is properly installed, adjusted and in good working order.
- Do not use the power tool if the switch does not turn it on and off.
- Apply the tool to the joint following all recommendations in this manual.
- Check to ensure the drive socket is fully seated and locked into position before connecting power to the tool.

Prepare to resist the tool's torque reaction:

Start the tool by depressing the start lever or trigger.

Release start lever after the cycle is complete.

### 3.5.1 Directional Control



#### WARNING

### UNEXPECTED REACTION FORCES

#### To Avoid Injury:

- Be prepared when a tool operates in reverse, the tool's torque reaction is opposite to the reaction produced when the tool operates in forward direction.
- The tool can have a higher initial reaction force when loosening a fastener.
- Always stop the tool before changing direction of spindle rotation.

#### 3.5.2 Torque Reaction Devices



### WARNING

# PINCH POINT BETWEEN TORQUE REACTION BAR AND WORK PIECE TO Avoid Injury:

- Never place any body part between a reaction bar and the work piece.
- Before starting the tool, position the reaction bar firmly against a stationary rigid member that is opposite to the spindle rotation.

Torque reaction devices absorb tool torque reaction forces. Always use reaction devices when high reaction force could injure an operator.

Some reaction devices may require modification to fit the application. Follow all appropriate installation instructions.

#### 3.5.3 Tool Temperature

### WARNING

#### POTENTIAL BURN HAZARD

Fixtured tools have higher operating temperatures and do not have additional thermal protection. **To Avoid Injury:** 

Wear thermal protective gloves when handling fixtured tools.

Stanley electric tools are thermally protected to prevent overheating. The thermal protection does not allow the tool to operate if the tool temperature rises abnormally – the thermal protector automatically resets when the tool cools down.

Controller task settings can have a significant effect on tool operating temperatures.

#### 3.5.4 Tool Status Lights

Handheld tools from **STANLEY ASSEMBLY TECHNOLOGIES** have three (green, yellow, and red) status lights. The status light mirror or copy the status lights on the controller or control panel.

Green	Tightened to specified limits	The tightening cycle meets all of the specified parameters.
Yellow	Low torque or angle	The tightening cycle was rejected for not reaching either low torque or low angle.
Red	High torque or angle	The tightening cycle was rejected for exceeding either high torque or high angle.
All lights	Reverse	The next time the start trigger is engaged the tool will release the fastener.



#### 3.5.5 Setting Torque, Angle, and Other Operating Parameters

#### WARNING

#### **EXCESSIVE TORQUE CONDITION**

#### To Avoid Injury:

- Only trained and qualified personnel should program controllers.
- Never set control limits above the maximum rating of the tool.
- Setting control limits above the maximum rating of the tool can cause high reaction torque.
- Always test for proper tool operation after programming the controller.

The Alpha controller can be setup to change tightening parameters from the tool.

#### 3.6 Special Application Tools

#### 3.6.1 Exposed Gear Socket Tools



#### WARNING

#### PINCH POINT AT THE EXPOSED GEARS OR TEETH To Avoid Injury:

Keep body parts and clothing away from the exposed gear sockets. Dress properly. Do not wear loose-fitted clothing or jewelry.

Exposed gear socket tools are designed to fit into tight spaces where other tools do not fit. These tools have exposed gears or ratchet teeth.

#### 3.6.2 Tubenut Nutrunners

### WARNING

### PINCH POINT AT THE EXPOSED GEARS OR TEETH

#### To Avoid Injury:

- Never place body parts or clothing, near the socket opening. Dress properly. Do not wear loose-fitted clothing or jewelry.
- Follow the Tubenut Nutrunner Sequence of Operation

Tubenut nutrunners are used for installing tube fittings.

#### **Tubenut Sequence of Operation (QPM Tools)**

- Place nutrunner socket on fastener
- Press the button on the multiple function panel to "arm" the start function (not required in modes 0 and 2)
- Depress start lever
- The tool stops after reaching torque
- Release the lever and lift the tool from the fastener, all tool status lights flash to indicate the tool will now run in reverse to open the socket
- Depress the start lever until the socket returns to the open position
- Release the lever
- Remove the tool

# **Controller Connections and Inputs/Outputs**

Each Alpha Controller can have a different combination of connectors. These connectors serve several purposes, such as:

- Power
- Tool Connections
- Discrete inputs and outputs



### CAUTION

POTENTIAL ELECTROSTATIC DISCHARGE HAZARD AND WATER AND DIRT INGESTION TO Avoid Damage:

If not using a connector, keep the connector securely covered with the provided cap. This reduces the opportunity for transfer of static electricity and prevents dirt and water from entering the controller.

### 4.1 Alpha Controller Connections

#### 4.1.1 Alpha Controller Power Cord

Alpha Controllers use an IEC 60320 style connector. The power source connector for the power cord is based on customer requirements. The power cord should be rated at either 15A/125V for 115 V or 10A/250V for 230 V use of the controller.

#### 4.1.2 Alpha Controller Tool Connector

Alpha controllers use a single 30 pin connector to connect two types of QPM DC electric tool cables (patent pending). QPM E\_\_ DC electric tool cables use a MIL-C-38999 Series III connector. The connector is a 17-30S with the insert clocked in the normal position (30-pin Tool Connector). QPM EA DC electric tools use a similar connecter except for B clocking.



30-pin Tool Connector

#### 4.1.3 Alpha Controller Serial Connector

Alpha Controllers have two male DB-9 connectors. One labeled COM PORT 1 connects a laptop computer for access to Embedded Toolbox software. The connection between the computer and the controller is a simple null-modem cable.



DB-9 Connector Pins

	Pin	Function	Pin	Function	Pin	Function
-	1	Carrier Detect	4	Data Terminal Ready	7	Request to Send
-	2	Receive Data	5	Signal Ground	8	Clear to Send
-	3	Transmit Data	6	Data Set Ready	9	Ring Indicator

A second DB-9 connector COM PORT 2 is setup as 9600,8,N,1 and is not programmable. When the box is setup for PFCS protocol over serial the barcode and printout feature is disabled.



The barcode input monitors inter character timing. When there is a 500ms gap between characters, a complete barcode is assumed. When received, it flashes the new barcode on the display and logs it with all rundowns until another barcode is received. If the incoming barcode is longer than 32 characters then the last 32 characters received is used.

#### 4.1.4 Alpha Controller Ethernet Connector

Alpha Controllers have a single RJ-5 Ethernet connection located on the bottom of the module for connecting to a plant-wide fastening network.

#### 4.1.5 Alpha Controller (Model QA1001 \_D\_) DeviceNet™

Alpha Controllers can have a single Micro DeviceNet<sup>™</sup> port for connecting the Alpha Controller to a Sigma Interface or to a master controller from another manufacturer. In addition, error proofing is available through this port.



### 4.1.6 Alpha Controller (Model QA1001 \_P\_) Profibus Port

Alpha Controllers can have a single Profibus port for connecting the Alpha Controller to a master controller from another manufacturer.



Figure 4-1 DB-9 Connecter Pins (Profibus Port)

Pin	Function	Pin	Function	Pin	Function
1	Empty	4	Repeater	7	Blank
2	Empty	5	Data Ref	8	Data Line Inverse
3	Data Line	6	Power Supply	9	Empty

#### 4.1.7 Alpha Controller (Model QA1001 \_\_V) Input and Output Connector

All inputs and outputs are optically isolated 24 VDC

- Internal 24 VDC supply: Maximum = 1 ampere total
- External 24 VDC supply: Maximum = 1 ampere per output

The Alpha controller has a MIL-C-26482 Series II bayonet connector for 24VDC I/O. The connector uses a 12-8S insert in the normal position. Connector options are listed below.

Part No.	19-pin 24V I/O Port	Included
21C104800	Mating Connector - Solder pins	Standard
21C104802	Mating Connector - Crimp pins	Optional
21C104804	Mating Connector - Crimp pins, crimp tool	Optional
21E102202	Breakout Box for plinth mounting	Optional
21C202005	Extension Cable 5M	Optional
21C202010	Extension Cable 10M	Optional
21C202020	Extension Cable 20M	Optional



When all of the inputs are off (binary 0) the controller looks to the tool for the parameter selection.

When the Alpha controller is used with fixtured tools, it must use a Remote Start/Stop/Reverse pendent to the controller to provide basic switching control for the tool.

### 4.2 Assignable Input/Output Functions

The following Input/Output functions apply to DeviceNET, Profibus, Modbus/TCP, and 24V. There are 8 maximum inputs and outputs for 24 VDC. See Appendix A for assignment of inputs and outputs using Embedded Tool Box.

Inputs	Description	Controller I/O Configuration Options	
IGNORE	Input is ignored	**Bit width	
START	Start the tool	N.O./N.C., Latch Y/N, Timer	
SELECT JOB	Select a job	N.O./N.C., Job #, Disable when open Y/N	
SELECT TASK	Select a task	N.O./N.C. , Task #, Disable when open Y/N	
STOP	Stop the tool	N.O./N.C.	
RESET JOB	Reset a job	N.O./N.C.	
TASK SELECT BIT	One bit in a series to select the task	N.O./N.C., Bit #	
JOB SELECT BIT	One bit in a series to select the job	N.O./N.C., Bit #	
REVERSE	Put the tool in reverse	N.O./N.C.	
DISABLE TASK	Disable the task	N.O./N.C., Task #	
DISABLE JOB	Disable the job	N.O./N.C., Job #	
TASK VERIFY	Verify the selected task to the inputs	N.O./N.C., Task #	
JOB VERIFY	Verify the selected task to the inputs	N.O./N.C., Job #	
TASK VERIFY BIT	Verify the selected task to one of the input bits	N.O./N.C., Bit #	
JOB VERIFY BIT	Verify the selected job to one of the input bits	N.O./N.C., Bit #	
RESET RESULT STATUS	Clear the result status	N.O./N.C.	
REVERSE START	Put the tool in reverse and start the tool	N.O./N.C.	
*PART ID	Set the part identification	Length, Trigger auto/manual	
DISABLE TOOL	Disable the tool.	N.O./N.C.	
*PART ID TRIGGER	Trigger for part ID/Resets Part ID changed output.	N.O./N.C.	

\* Input not available on 24V

\*\* Does not apply to 24V

Outputs	Description	Controller I/O Configuration Options
OFF	Output is turned off	**Bit width
IN CYCLE	The tool is in cycle	N.O./N.C., Type normal/timed/flash, Time
JOB SELECTED	Indicate job select	N.O./N.C., Type normal/timed/flash, Time, Job #
DISASSEMBLY DETECTED	Fastener removed	N.O./N.C., Type normal/timed/flash, Time
TOOL RUNNING	The tool is running	N.O./N.C., Type normal/timed/flash, Time
CYCLE OK	Self explanatory	N.O./N.C., Type normal/timed/flash, Time
CYCLE NOK	Self explanatory	N.O./N.C., Type normal/timed/flash, Time
TASK SELECTED	Indicate task selected	N.O./N.C., Type normal/timed/flash, Time, Task #
JOB COMPLETE	Job complete	N.O./N.C., Type normal/timed/flash, Time
TASK COMPLETE	Task complete	N.O./N.C., Type normal/timed/flash, Time, Task #
TASK SELECTED BIT	Indicate a bit of the selected task	N.O./N.C., Bit #, Binary/Binary +1
JOB SELECTED BIT	Indicate a bit of the selected job	N.O./N.C., Bit #, Binary/Binary +1
TORQUE OK	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
TORQUE HIGH	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
TORQUE LOW	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
ANGLE OK	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
ANGLE HIGH	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
ANGLE LOW	Self explanatory	N.O./N.C., Type normal/timed/flash, Time, Step Audit/Audit -1, Audit -2
CYCLE ABORTED	The rundown was aborted	N.O./N.C., Type normal/timed/flash, Time
STOPPED	The rundown was stopped by the operator	N.O./N.C., Type normal/timed/flash, Time
FAULTED	A fault condition is active	N.O./N.C., Type normal/timed/flash, Time
READY	The tool is ready to run	N.O./N.C., Type normal/timed/flash, Time
PM	The tool requires service	N.O./N.C., Type normal/timed/flash, Time
TORQUE *	Torque results	Format float/int16/int32/fixed, precision, Step Audit/Audit -1, Audit -2
ANGLE *	Angle results	Format float/int16/int32/fixed, precision, Step Audit/Audit -1, Audit -2
FAULT CODE *	Fault code	Format float/int16/int32/fixed, precision
PARAMETER *	Parameter	Format float/int16/int32/fixed, precision, Step Audit/Audit -1, Audit -2
START TRIGGER	Shows state of start lever or trigger.	N.O./N.C., Type normal/timed/flash, Time
MULTIFUNCTION	Shows state of multifunction	N.O./N.C., Type normal/timed/flash, Time
BUTTON SNUC ACHIEVED	button.	NO NO Tours a second 1/6 and 1/6 and 1
SNUG ACHIEVED	Stop shut off code before cycle	IN.O./IN.C., Type normal/umed/flash, fime
CYCLE STOPS	complete.	N.O./N.C., Type normal/timed/flash, Time
CHANGED	When the part ID changes	N.O./N.C., Type normal/timed/flash, Time
STEP BIT	Indicates last step of rundown	N.O./N.C., Bit #, Binary/Binary +1

\* Outputs not available on 24V

\*\* Does not apply to 24V

# Glossary

Abort Timer	The tightening cycle aborts if the tool does not shutoff before this pre-selected time.
Acceleration	How fast the controller changes the speed of the tool from 0 (stopped) to the rated speed.
Accept Tone	Controls the tone made from the handle of handheld QPM tools for accepted tightening cycles. Allows distinct tones for tools in adjacent workstations.
AC/TA	Angle Control Torque Averaging.
AC/TC	Angle Control Torque Control. This strategy controls a tool based on angle and Torque.
AC/TM	Angle Control with Torque Monitor. This strategy controls a tool based on angle and monitors the torque limits defined by user.
Angle Interval	(Rate, Yield and AC/TA) Angle interval is used to calculate Torque vs. Angle Rate. A larger interval tends to give a smoother rate.
ATC	Allows Adaptive Tightening Control modes to be selected, so that consistent torque can be maintained over a wide range of joints. Manual downshift should be used when:
	• High Prevailing Torques – Prevailing Torque > 20% of the Torque Set Point (TSP).
	• High Starting Torque – Starting Torque > 20% of TSP.
Auto Sequence Tasks	Enables the tool setup for the next task after the batch count is achieved for the prior task in a Job.
BACK	Back-Off. This strategy functions after Angle Control with Torque Monitor (AC/TM). It loosens the fastener (turns it the opposite direction from tightening).
Batch Count	The number of tightening cycles required to be within specified limits to complete a batch. The Run display shows the batch count and number of complete tightening cycles. Defines the number of rundowns required to be completed for each task.
Downshift Mode	Disable: no downshift; Manual: Occurs at specified torque; ATC automatically adapts to the joint.
Downshift Speed	Once the tool reaches the Downshift Torque point, the controller changes the operating speed of the tool from the initial Tool Speed to the Downshift Speed.
Downshift Torque	The controller changes the operating speed of the tool from the initial Tool Speed to the Downshift Speed at the Downshift Torque level.
High Angle	Anytime the peak angle recorded exceeds the High Angle, the tightening cycle is recorded as a reject for high angle, the high angle light (red) illuminates and the tightening cycle is given an overall status of NOK.
High Torque	Anytime the peak torque recorded exceeds the High Torque, the tightening cycle is recorded as a reject for high torque, the high torque light (red) illuminates and the tightening cycle is given an overall status of NOK.
Jobs	Define one or more assembly sequences that can include multiple fasteners controlled by one or more tasks.
Low Angle	Anytime the peak angle recorded during the Angle Audit Step fails to reach the Low Angle, the tightening cycle is recorded as a reject for low angle, the low angle light (yellow) illuminates and the tightening cycle is given an overall status of NOK.
Low Torque	When the peak torque recorded fails to reach the Low Torque, the tightening cycle is recorded as a reject for low torque, the low torque light (yellow) illuminates and the tightening cycle is given an overall status of NOK.
MFP Mode	Controls the operation of the multiple-function panel (MFP) on QPM tools. Choices includes: MFB Tap (Disabled, Reverse, Task Sel, Arm, Rst Rej, Job Sel,

	Job Rst) and MFB Hold (Disabled, Reverse, Task Sel, Arm, Rst Rej, Job Sel, Job Rst). The default value is Disabled.	
Odometer	The odometer increments after every in cycle to tracks the total tool cycles. It cannot be reset.	
Parameter Set	Now referenced as a Task.	
PM Counter	Records the number of tightening cycles completed since the last time it was reset for Planned Maintenance.	
PM Counter	The PM (preventative maintenance) counter tracks the total tool cycles until maintenance is required.	
PM Limit	When the PM Counter exceeds the PM Limit, the controller provides a maintenance alert.	
RATE	RCAM Torque Rate Control. This strategy uses an increase in Torque Rate Control to a specified level to indicate a fastening process event.	
Reject Tone	Controls the tone made from the handle of handheld QPM tools for rejected tightening cycles. Allows distinct tones for tools in adjacent workstations.	
Slow Seek	Slow Seek helps engage the socket or fastener at a pre-selected speed, torque level and angular rotation. Once engaged, the tightening cycle completes at a higher speed. Slow Seek prevents cross threaded fasteners and previously secured fasteners from being counted in a batch.	
Snug Torque The controller begins to monitor the tool for angle at a pre-selected th torque. Any increase in angle after the snug point results in a correspondence in the tension or clamp load within the joint.		
Soft Stop	Soft stop minimizes the torque impulse to the operator during tool shutoff at the end of the tightening cycle.	
Speed	The speed at which the tool operates during the initial portion of the tightening cycle prior to ATC or downshift.	
Spindle	A spindle represents a connection to a hand held or fixtured tool connected to a controller.	
Steps	Instructions to operate a tool defined by available strategies such as TC/AM (Torque Control, Angle Monitoring).	
Strategy	Identifies what variables will be used to control the tool during a tightening cycle.	
System Outputs	(Tool Running, In Cycle, Cycle OK, Cycle NOK, Disassembly Detected, Indicate Job) also fixed and pulsed	
Task	Control tool operation for tightening a fastener which can have one or more steps. A collection of instructions that define how the tool should perform the tightening process. It may be selected from the keypad or 24V device such as a socket tray.	
TC/AM	Torque Control with Angle Monitoring. This strategy controls a tool based on torque and monitors the angle limits defined by user.	
Thread Direction	Sets assembly direction to clockwise (CW) or counter clockwise (CCW).	
Threshold Torque	Sets the point at which the tool is "In Cycle." When the tool is "In Cycle" the tool and controller tightening cycle status lights turn off, the controller displays dashes (-) for data, and the "In Cycle" output is turned on.	
Tool Tones	Distinctive sounds assigned to tool functions.	
Torque Average	(Rate, Yield and AC/TA) Number of torque samples averaged for rate calculation. Torque samples are taken every millisecond. A running average is calculated based on these samples. A higher number gives a smoother rate.	
Torque Calibration	Determines how torque values are assigned to the electrical signals from the torque transducer on the tool. This value is unique to each tool and changes over time.	
Torque Target	When the tool is being controlled for torque, the torque target instructs the controller when to shutoff the tool. The torque target should be greater than Low Torque and less than High Torque, and is required for torque control.	
Trace	A display plot of torque versus time (or angle) of a tightening cycle.	
Trip Counter	Records the number of total tool tightening cycles completed since the last time it was reset. It is usually used as a supplementary count of the PM Counter.	

Units	The following to and tools.	The following torque units and associated labels are used with Stanley controllers and tools.			
	Abbreviation	Common Term	= 1 lbfft	= 1 Nm	
	Nm	Newton meter	1.355 818	1	
	Ncm	Newton centimeter	135.581 8	100	
	Ndm	Newton decimeter	13.5582	10	
	kgm	Kilogram meter	0.138 255 2	0.101 971 6	
	kgcm	Kilogram centimeter	13.825 52	10.197 16	
	ftlb	Foot pound	1	0.737 562 1	
	inlb	Inch pound	12	8.850 745	
	inoz	inch ounce	192	141.611 9	
YIELD	YCAM Yield C variable.	ontrol. This strategy uses	s Torque vs. Ange	el Rates as the control	

# Software Map

### 6.1 Setup

#### 6.1.1 Wizard

- Strategy (Torque, Angle, Torque & Angle)
- Units (NM, FTLB, INLB, INOZ, KGM, NCM, NDM)
- Thread Direction (CW CCW)
- High Torque
- Low Torque
- Snug Torque
- High Angle
- Low Angle
- Speed
- Wobble (Angle Target, Speed, Max Torque)
- Slow Seek (Angle Target, Speed, Max Torque)
- Start Delay (Delay Time, Max Torque)
- Conditioner Fastener (Down Target Torque, Delay Time, Max Time, Up Angle Target)
- Pre-Torque (Torque Target, Delay Between Steps)
- ATC
- Backout Fastener (Angle Target, Torque Target, Speed
- Fastener Release (Speed, Angle Target, Max Torque)

#### 6.1.2 Job

- Name
- Barcode ID
- Auto Sequence Tasks (Yes, No)
- Auto Reset Job (Yes, No)
- Enable Error Proofing

6.1.2.1 Task

- Name
- Batch Count
- Units (NM, FTLB, INLB, INOZ, KGM, NCM, NDM)
- Thread Direction (CW, CCW)
- Threshold Torque
- Statistical Threshold
- Disassembly Speed
- Disassembly Acceleration
- Cycle Lock-Out
- Torque Audit Step (Last, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)
- Angle Audit Step (Last, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)
- Torque Rate

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- Torque Average
- Angle Interval
- Modified
- 6.1.2.2 Step
- Name

•

- Strategy TC/AM
- Torque Target
- High Torque
- Low Torque
- Snug Torque
- High Angle
- Low Angle
- Angle Bailout
- Downshift Mode (Disabled, Manual, ATC)
  - Manual: Downshift Mode
  - Manual: Downshift Speed
  - ATC: Starting Torque %
  - ATC: Ending Torque %
  - ATC: Ending Speed %
- Soft Stop (Yes, No)
  - Yes: Current Off Time
  - Yes: Current Hold Time
  - Yes: Current Ramp Time
- Speed
- Power
- Acceleration
- Abort Timer
- Delay Between Steps
- Accumulate Angle (Yes, No)
- Strategy AC/TM
  - Snug Torque
  - Angle Target
  - High Angle
  - Low Angle
  - High Torque
  - Low Torque
  - Torque Bailout
  - Downshift Mode (Disabled, Manual)
    - Manual: Downshift Mode
    - Manual: Downshift Speed
  - Soft Stop (Yes, No)
    - Yes: Current Off Time
    - Yes: Current Hold Time
    - Yes: Current Ramp Time

- Speed
- Power
- Acceleration
- Abort Timer
- Delay Between Steps
- Accumulate Angle (Yes, No)
- Strategy AC/TC
  - Torque Target
  - High Torque
  - Low Torque
  - Torque Bailout
  - Snug Torque
  - Angle Target
  - High Angle
  - Low Angle
  - Angle Bailout
  - Downshift Mode (Disabled, Manual, ATC)
    - Manual: Downshift Mode
    - Manual: Downshift Speed
    - ATC: Starting Torque %
    - ATC: Ending Torque %
    - ATC: Ending Speed %
  - Soft Stop (Yes, No)
    - Yes: Current Off Time
    - Yes: Current Hold Time
    - Yes: Current Ramp Time
  - Speed
  - Power
  - Acceleration
  - Abort Timer
  - Delay Between Steps
  - Accumulate Angle (Yes, No)
- Strategy BACK
  - Snug Torque
  - Angle Target
  - High Angle
  - Low Angle
  - Torque Target
  - High Torque
  - Low Torque
  - Torque Bailout
  - Downshift Mode (Disabled, Manual, ATC)
    - Manual: Downshift Mode
    - Manual: Downshift Speed

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- ATC: Starting Torque %
- ATC: Ending Torque %
- ATC: Ending Speed %
- Soft Stop (Yes, No)
  - Yes: Current Off Time
  - Yes: Current Hold Time
  - Yes: Current Ramp Time
- Speed
- Power
- Acceleration
- Abort Timer
- Delay Between Steps
- Accumulate Angle (Yes, No)
- Strategy RATE
  - Torque Rate Target
  - High Torque
  - Low Torque
  - Torque Bailout
  - Snug Torque
  - High Angle
  - Low Angle
  - Angle Bailout
  - Downshift Mode (Disabled, Manual, ATC)
    - Manual: Downshift Mode
    - Manual: Downshift Speed
    - ATC: Starting Torque %
    - ATC: Ending Torque %
    - ATC: Ending Speed %
  - Soft Stop (Yes, No)
    - Yes: Current Off Time
    - Yes: Current Hold Time
    - Yes: Current Ramp Time
  - Speed
  - Power
  - Acceleration
  - Abort Timer
  - Delay Between Steps
  - Accumulate Angle (Yes, No)
- Strategy YIELD
  - Yield Target
  - High Torque
  - Low Torque
  - Torque Bailout
  - Snug Torque

- High Angle
- Low Angle
- Angle Bailout
- Downshift Mode (Disabled, Manual, ATC)
  - Manual: Downshift Mode
  - Manual: Downshift Speed
  - ATC: Starting Torque %
  - ATC: Ending Torque %
  - ATC: Ending Speed %
- Soft Stop (Yes, No)
  - Yes: Current Off Time
  - Yes: Current Hold Time
  - Yes: Current Ramp Time
- Speed
- Power
- Acceleration
- Abort Timer
- Delay Between Steps
- Accumulate Angle (Yes, No)
- Strategy AC/TA
  - Snug Torque
  - Angle Target
  - High Angle
  - Low Angle
  - Torque Target
  - High Torque
  - Low Torque
  - Max Torque Bailout
  - Mind Torque Bailout
  - Downshift Mode (Disabled, Manual, ATC)
    - Manual: Downshift Mode
    - Manual: Downshift Speed
    - ATC: Starting Torque %
    - ATC: Ending Torque %
    - ATC: Ending Speed %
  - Soft Stop (Yes, No)
    - Yes: Current Off Time
    - Yes: Current Hold Time
    - Yes: Current Ramp Time
  - Speed
  - Power
  - Acceleration
  - Abort Timer
  - Delay Between Steps

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- Accumulate Angle (Yes, No)
- 6.1.3 Communications
- Obtain IP From Network (No, Yes)
  - IP Address
  - Subnet Mask
  - Gateway
  - DNS
  - Physical
- Serial
  - Serial Port 1 (Barcode/Printer, Barcode, Printer, ETB)
  - Serial Port 2 (Barcode/Printer, Barcode, Printer, Toyota, PFCS, Open)
- PFCS
  - Server IP
  - Port
  - Time Out
- Open
  - Port
  - Cell
  - Buffer while off line
  - Toolsnet
    - Server IP
    - Port
    - Cell
    - Station

#### 6.1.4 Other

- General
  - Name
  - Keypad Mode (Disabled, Task Select, Job Select, Part ID)
  - Count Mode (Count Up, Count Down)
  - Stop/Abort within Limits (OK, NOK)
- Users
  - Add
    - Manage
      - 1. Add
      - 2. Delete
      - 3. Change Password
      - 4. Change Access
- Outputs
  - C (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
  - D (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected

Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)

- E (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- F (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- G (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- H (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- J (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- K (Off, In Cycle, Job Selected, Disassembly Detected, Tool Running, Cycle OK, Cycle NOK, Task Selected, Job Completed, Task Complete, Task Selected Bit, Job Selected Bit, Torque OK, Torque Hi, Torque Low, Angle OK, Angle Hi, Angle Low, Cycle Aborted, Stopped, Faulted, Ready, PM, Start Trigger, MFB, Snug Achieved, Cycle Stopped, Step Bit)
- Inputs
  - L (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
  - M (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
  - N (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
  - P (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
  - R (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
  - S (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)

- T (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
- U (Ignore, Start, Select Job, Select Task, Stop, Reset Job, Task Select Bit, Job Select bit, Reverse, Disable Task, Disable Job, Task Verify, Job Verify, Task Verify Bit, Job Verify Bit, Reset Result Status, Reverse Start, Disable Tool)
- Triggers
  - Tap Action (Disabled, Reverse, Task Select, Arm, Reset Reject, Job Select, Job Reset)
  - Hold Action (Disabled, Reverse, Task Select, Arm, Reset Reject, Job Select, Job Reset)
  - Start Input (Any, All, Lever, PTS, None)
- Lights
  - Lights (1,2) (Task, Job)
  - Headlight Timer
- Tones
  - Accept Tone (None, Beep, Beeeep, Tocatta, Fifth, Turkishmarch, Funeralmarch, Ninth, Michigan, Ohio)
  - Reject Tone (None, Beep, Beeeep, Tocatta, Fifth, Turkishmarch, Funeralmarch, Ninth, Michigan, Ohio)
- Tool
  - PM Limit
  - Temperature Limit
  - Torsion Factor
  - Requires Arming (No, Yes)
- Stats
  - Population
  - Subgroup Size
- Clock
  - Time
  - Date

#### 6.1.5 Full Backup/Restore

- Backup
- Restore
- Defaults

#### 6.2 Service

- 6.2.1 Tool
- About
  - Model
  - Serial
  - Software Version
  - Max Torque
  - Max Speed
- Counters
  - Odometer
  - PM Counter
  - Trip Counter

- Cal
  - Nominal Cal
  - Torque Cal
  - Modified

### 6.2.2 Controller

- About
  - Model
  - Serial
  - Software Version
  - Servo Version
- Update

### 6.3 Analyze

- Results
- Cap
- Perform
- Cam
- Export
  - o 1. Rundown Data (save)
  - o 2. Fault Event Data (save)
- Job1.1 (Job, Task)
- 1. Rundown Data

# Warranty

#### Mechanical Products Limited Warranty:

STANLEY ASSEMBLY TECHNOLOGIES ("Stanley") warrants its Assembly Technologies mechanical products to the original purchaser to be free from deficiencies in material or workmanship for the useful life of the product.

Under this lifetime limited warranty Stanley will, at its discretion, repair or replace any product which, upon inspection, is acknowledged by Stanley to be defective.

This limited lifetime warranty shall apply to products which have been used under normal operating conditions for their intended use and shall not apply to products which have been subjected to: abnormal wear and tear, abuse, misuse, improper maintenance, negligence, continued use after partial failure, accident, alterations or repairs with non-genuine Stanley replacement parts.

### **Electronic Products Limited Warranty:**

Stanley warrants its Assembly Technologies electronic products to the original purchaser to be free from deficiencies in material or workmanship for a period of one year after the date of shipment.

Under this limited warranty Stanley will, at its discretion, repair or replace any product which, upon inspection, is acknowledged by Stanley to be defective.

This warranty shall apply to products which have been used under normal operating conditions for their intended use and shall not apply to products which have been subjected to: abnormal wear and tear, neglect, component degradation, improper handling, overload, abuse, misuse, improper maintenance, use with improper accessories, or where alterations have been made.

### Software Products Limited Warranty:

Stanley warrants its Assembly Technologies software products to the original purchaser to be free from deficiencies in material or workmanship for a period of one year after the date of shipment.

Under this limited warranty Stanley will, at its discretion, make available replacement software or an upgrade for any product which, upon inspection, is acknowledged by Stanley to be defective. Installation of the software shall be the responsibility of the requestor.

This warranty shall apply to products which have been used with specified, compatible hardware under normal operating conditions for their intended use and shall not apply to products which have been: modified, misused, improperly handled, improperly maintained, or used with non-compatible hardware or accessories.

#### **OEM Products Limited Warranty:**

Some Stanley Assembly Technologies custom engineered systems include components manufactured by others. The limited warranties of each individual manufacturer shall apply to these components and Stanley makes no representation or warranty of any kind, expressed or implied, with respect to such components.

#### General Terms:

This limited warranty gives you specific legal rights and is in lieu of all other warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Some states and countries do not allow limitations on implied warranties, so the above may not apply to you. You may also have other rights which vary by state or country.

Stanley shall not be responsible for incidental or consequential damages or the inability to use its products for any purpose whatsoever. Stanley's maximum liability shall not in any case exceed the

contract price for the products claimed to be defective. Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so this specific limitation or exclusion may not apply to you.

#### **Specification Changes:**

Stanley retains the right to discontinue and/or change specifications of any Assembly Technologies products without responsibility for incorporating changes in products already sold.

#### Warranty Claims:

To apply for warranty consideration, the original purchaser should take the following action:

Contact the Stanley Assembly Technologies customer service department to obtain a "Return Authorization Number" and "Warranty Claim Report Form."

Package the product including proof of purchase and the completed warranty claim form.

Note the Return Authorization Number on the exterior of the package and return freight to:

Stanley Assembly Technologies 5335 Avion Park Drive Cleveland, Ohio 44143-2328

In the event that a product is repaired or replaced under the terms of the warranty, the warranty period of the repaired or replacement product shall be limited to the remaining portion of the original warranty period.

### **Product Services**

Stanley provides full services for design, modification, service, repair, and training on Stanley products.

Contact STANLEY ASSEMBLY TECHNOLOGIES or their agents for information on training courses to aid users in becoming familiar with operations, maintenance, or programming of the Stanley DC electric tools and controllers.

No modification of Stanley tools and controllers can be made without the express permission of STANLEY ASSEMBLY TECHNOLOGIES. Refer all service to STANLEY ASSEMBLY TECHNOLOGIES, or their representatives.

#### **Return Material Authorization (RMA) Procedures**

A Return Material Authorization or RMA is required before returning any material for warranty or repair service.

- Contact STANLEY ASSEMBLY TECHNOLOGIES or their agents.
- Request Customer Service or Repair Services.



### NOTE:

An RMA can be given without a purchase order. However, non-warranty repairs cannot be performed until a written purchase order or credit card authorization is received.

- Have the following information available for the person answering the telephone to obtain an RMA:
  - Company name and address.
  - A contact name and telephone number. If possible, have facsimile and pager numbers (if any) available.
  - The Stanley model number, serial number, and description for the item
  - A short description of the problem.

Contacts

**STANLEY ASSEMBLY TECHNOLOGIES:** 5335 Avion Park Drive, Cleveland, Ohio 44143-2328 USA Tel: +1 (440) 461-5500 Fax: +1 (440) 461-5592; SATinfo@stanleyworks.com

**STANLEY ASSEMBLY TECHNOLOGIES**: 1875 Research Drive, Suite 200 Troy, Michigan 48092 USA Tel: +1 (248) 824-1100 Fax: (248) 824-1110 Toll Free Service: (877) 787-7830 Toll Free Sales: (877) 709-8006

**STANLEY WORKS Ltd. (FRANCE):** Outils Portatifs et Systemes d'Assemblage, Zone Imoparc bat Loire 4, 78190 Trappes, France Tel: +33 (1) 3050 9100 Fax: +33 (1) 3051 0708

**STANLEY GERMANY, Inc.:** Frankfurter Strasse 74, D-64521 Gross-Gerau, Germany Tel: +49 (0) 6152 8052-0 Fax: +49 (0) 6152 8052-22 SATGER@stanleyworks.com

**STANLEY TOOLS S.r.l. (ITALY**): Divisione Assembly Technologies, 47 Via Parco, 20046 Biassono (MI) Tel: +39 (039) 2389.1 Fax: +39 (039) 2389970

**STANLEY ASSEMBLY TECHNOLOGIES:** Gowerton Road, Brackmills, Northhampton NN4 7BW, England Tel: +44 (1604) 827247 Fax: +44 (1604) 827277

**STANLEY ASSEMBLY TECHNOLOGIES SHANGHAI REPRESENTATIVE OFFICE:** Room 1908, Shanghaimart Tower, 2299 Yan An Road West, Shanghai 200336, China Tel: 011-86-21-3208-4550 Fax: 011-86-21-6236-0191

www.StanleyAssembly.com

# Appendix A – Embedded Toolbox

Features, Navigation and Menu

#### 1.1 Introduction

Embedded Toolbox enables communication to an Alpha controller using a networked computer's web browser. To get started, point the browser to the controller's IP address.

#### 1.2 Installation

#### 1.2.1.1 Requirements for Alpha Controllers (Ethernet Connection):

- Javascript enabled Internet browser with Flash 9 for Windows, Macintosh, or Linux running over an Ethernet TCP/IP connection
- Adobe Flash Player v9 or above (http://www.adobe.com)
- QA1001 Alpha Controller Version 3.0 or above
- Q1001 Alpha Controller Version 4.0 or above

Connect to the controller using the IP address in the browser. Alpha controllers can also connect through the Controller Gateway using the serial port as described for the Q0001 Kappa controller.

1.2.1.2 Requirements for Alpha Controllers Using the Controller Gateway (Serial Connection):

- Microsoft Windows XP (for serial connection to a controller)
- QA1001 Alpha Controller Version 3.0 or above
- Q1001 Alpha Controller Version 4.0 or above
- Javascript enabled browser and Adobe Flash Player described above

The Controller Gateway is a Windows based software program that provides a web based interface to an Alpha controller connected via a serial link.

#### 1.2.1.3 Installing the Controller Gateway

Using the provided installation media, run the setup program and follow the on-screen instructions. During installation, TCP/IP ports for the web interface and the live event interface can be set. Leave the default values unless you understand their meaning and require a port change for your specific environment.

#### 1.2.1.4 Running the Controller Gateway?

The installer sets the Controller Gateway to automatically launch each time the computer is started. When Controller Gateway is running, a small icon appears on the system tray or Windows Task bar (typically at the bottom right corner of the screen).

Right-clicking on the Controller Gateway icon displays its menu. From the menu, select the Auto-Connect option. Note that Auto-Connect is the default option; this means that double-clicking the Controller Gateway icon also starts the auto-connection process.

The auto-connection process launches the default web browser and examines the computers available serial ports. The Controller Gateway looks port by port for a compatible Stanley controller connection. When one is found, the browser redirects to the controller's main menu. From the menu, setup, maintenance and analysis functions can be performed.

If a compatible controller is not found, the auto-connect mechanism offers to try again. If you choose to not try again, the browser is redirected to an "Offline Mode" menu. In offline mode, setups and configuration file exports can be created. These files can be imported to a connected controller in the future.

### 1.3 Navigation

A lock/unlock icon 🛄 connects or disconnects the controller. An amplifying signal icon 🔊 shows green when connected and red when disconnected.



### NOTE:

Use the Show All button Show All – not the browser's back button – to return to the main menu.

### 1.4 Menu Options

Quick Start gives wizard capability to configure simple tightening cycles Setup for a specific job. Jobs Management configures tightening cycles with full controller capability to manage jobs, tasks and steps.

Systems Management configures system name, multiple-function button (MFB) mode, keypad mode and tones.

Input / Output configures 24 volt input/output, fieldbus input/output, modbus TCP input/output using either a table or graphical view.

Rundown Analysis enables data import/export/print and analysis including traces, statistics, historical data and xbar/range views.

Tool Diagnostics shows real time tool parameters such as speed and temperature.

I/O Diagnostics enables real time analysis and stimulus for 24 volt input/output, fieldbus input/output, modbus TCP input/output.

Reports shows, saves and prints detail controller reports for: system, jobs, tasks and/or combined jobs and tasks.

Tool Configuration Update upgrades tool configuration information.

- Quick Start
- Jobs Management
- System
- Management
- Input / Output

#### Analvze

- Rundown Analysis
- Tool Diagnostics
- I/O Diagnostics

#### Report

Parameter Sheet

#### Service

 Tool Configuration Update


### 1.4.1 Setup



#### 1.4.1.1 Quick Start

Quick Start provides a graphical user interface (GUI) for wizard programming Alpha controllers.

#### 1.4.1.1.1 Job Name

iter job name on the openin	g screen.	Setup ● Quick Start ○ Job Name
STANLEY seembly Technologies	embedded Toolbox	ck to prevent luither 🔒 💼
Show All Param	Quick Start	al
1, Job Hame		
This wizard configures fastening parame	eters for a selected strategy.	
What do you want to name this job	2	
2. Task Definition		
3. Task Hame		
4. Strategy		
5. Audit Step		
5. Audit Step 6. Controls		
5. Audit Step 6. Controls 7. Slow Seek		

#### 1.4.1.1.2 Task Definition

Identify the number of bolts to be fastened and whether they will be fastened using the same parameters. If no, then a bolt control option appears at top. Setup
 Quick Start
 Job Name
 Task Definition

TANLEY sembly Technologies	embedded Toolbox v2,0RC1	Click the lock to prevent lurther	ction Type:
how All	Quick Start Parameter configuration wizard for easy	controller setup	
I, Job Hame			
2. Task Definition			
1 Do you want all the bol parameters? Yes	ts to be fastened with the same		
1 Do you want all the bol parameters? Yes	ts to be fastened with the same		
1 Do you want all the bol parameters? Yes • 3. Task Hame	ts to be fastened with the same		
1 Do you want all the bol parameters? Yes • 3. Task Hame 4. Strategy	ts to be fastened with the same		
1 Do you want all the bol parameters? Yes • 3. Task Hame 4. Strategy 5. Audit Step	ts to be fastened with the same		
1 Do you want all the bol parameters? Yes • Yes • 3. Task Name 4. Strategy 5. Audit Step 6. Controls	ts to be fastened with the same		

#### 1.4.1.1.3 Task Name

Enter the task name to identify this set of fastening parameters.

Setup

Quick Start Job Name
 Task Definition
 Task Name

STANLEY sembly Technologies	embedded Toolbox v2.0RC1	Click the lock to prevent further * 📗 🔤 🛛 Connection Type: 🔒
Show All	Quick Start Parameter configuration wizard for easy po	ntroller setup
1. Job Name		
2. Task Definition		
3. Task Name		
4. Strategy		
5. Audit Step		
6. Controls		
7. Slow Seek		

#### 1.4.1.1.4 Strategy

Strategy options include Torque, Angle and Torque & Angle. Use this screen to also set units and fastening direction.

#### Setup • Quick Start

- o Job Name
- o Task Definition
- Task Demnite
   Task Name
- Strategy

sembly Technologies	v2.0RC1	Connection Type:
Show All	Quick Start Parameter configuration wizard for easy co	ntroller setup
	· · · · · · · · · · · · · · · · · · ·	
1. Job Name		
2. Task Definition		
3. Task Name		
4. Strategy		
controller and tool will hav step. You may select a pre	e with the bolt during the execution of the edefined strategy, which accounts for most	
What strategy would yo	ou like to use for this step?	
What strategy would yo Torque & Angle	ou like to use for this step?	
What strategy would yo Torque & Angle What units would you I	ou like to use for this step? • ike to use for the torque specifications?	
What strategy would you Torque & Angle What units would you I	ou like to use for this step? • ike to use for the torque specifications?	
What strategy would you Torque & Angle What units would you I NM	ou like to use for this step? w ike to use for the torque specifications? on of the fastening operation?	
What strategy would yo Torque & Angle What units would you I NM What is the tool directi Clockwise (CW)	ou like to use for this step? v ike to use for the torque specifications? on of the fastening operation? v	
What strategy would yo Torque & Angle What units would you I NM What is the tool directi Clockwise (CW) 5. Audit Step	ou like to use for this step? • • • • • • • • • • • • • • • • • • •	
What strategy would yo Torque & Angle What units would you I NM What is the tool directi Clockwise (CW) 5. Audit Step 6. Controls	ou like to use for this step? • • • • • • • • • • • • •	

o Job Name

o Task Name

o Task Definition

Setup Quick Start

#### 1.4.1.1.5 Audit Step

The Audit Step sets the high and low limits for torque and/or angle depending on the strategy selected. Free speed of the tool is also set. For angle limits, the snug torque determines the starting point for angle measurement.

		<ul> <li>Task P</li> <li>Strateg</li> <li>Audit S</li> </ul>
TANLEY embly Technologies	embedded Toolbox v2.0RC1	Click the lock to prevent further 🌆 🔤 🤊 Connection Type: Local
how All	Quick Start anameter configuration wizard for easy co	intraller setup
. Job Name		
. Task Definition		
. Task Name		
l. Strategy		
. Audit Step		
0 NM What is the low torque?		
0 NM		
What is the snug torque?		
0 NM		
What is the high angle?		
9999.9 *		
What is the low angle?		
. Controls		
, Slow Seek		

#### 1.4.1.1.6 Controls

Controls enables setting the variables for:

- Wobble
- Slow Seek
- Start Delay
- Condition Fastener
- Pre-Torque
- ATC
- Backout Fastener
- Release Fastener

The default is Slow Seek selected and ATC enabled.

- Quick Start
  - o Job Name
  - o Task Definition
  - $_{\circ}$  Task Name
  - Strategy
  - o Audit Step
  - $\circ$  Controls

TANLEY sembly Technologies	embedded Toolbox v2,0RC1	Click the lock to prevent further 🎧 🔤 🛜 Connection Type: 1 Loc
show All	Quick Start Parameter configuration wizard for easy con	ntroller setup
1, Job Hame		
2. Task Definition		
3. Task Name		
4. Strategy		
5. Audit Step		
6. Controls		
Condition Fastener Pre-Torque ATC Backout Fastener Release Fastener		
7. Slow Seek		

### 1.4.1.1.7 Wobble

STANLEY Ausdation of the state of the	et output rotate	(degrees), tool	speed and maximum torque.	Setup • Quick Start • Job Name • Task Definition • Task Name • Strategy • Audit Step • Controls • Wobble
Assembly Technologies         Outcol         Centection Type:         Local           Show All         Quick Start Personeter configuration Widahd for basy controller setur         Image: Control of Cont	STANLEY		embedded Toolbox	s to prevent further 🔒 🔤 🖕
1. Job Hame         2. Task Definition         3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         How many degrees should the output rotate?         360         %         What tool speed should be used?         0       RPM         What is the maximum torque that should be measured?         0       NM         8. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         14. Inisedit (Save the Job)	Assembly Technologies	Paramete	Quick Start	Connection Type: Local
1. Job Hame         2. Task Definition         3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         How many degrees should the output rotate?         300         0         RPM         What tool speed should be used?         0       RPM         What is the maximum torque that should be measured?         0       NM         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fasteners         13. Release Fastener         14. Finished! (Save the Job)				
2. Task Definition 3. Task Hame 4. Strategy 5. Audit Step 6. Controls 7. Wobble How many degrees should the output rotate? 380 ° What tool speed should be used? 0 RPM What is the maximum torque that should be measured? 0 RPM What is the maximum torque that should be measured? 0 RPM 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)	1, Job Name			
3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         How many degrees should the output rotate?         380         %         What tool speed should be used?         0       RPM         What is the maximum torque that should be measured?         0       NM         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         14. Finished! (Save the Job)	2, Task Definition			
4. Strategy 5. Audit Step 6. Controls 7. Wobble How many degrees should the output rotate? 360 ° What tool speed should be used? 0 RPM What is the maximum torque that should be measured? 0 NM 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)	3. Task Name			
5. Audit Step 6. Controls 7. Wobble How many degrees should the output rotate? 360 ° What tool speed should be used? 0 RPM What is the maximum torque that should be measured? 0 NM 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)	4. Strategy			
6. Controls 7. Wobble How many degrees should the output rotate? 380  What tool speed should be used?  RPM What is the maximum torque that should be measured?  RPM Show Seek 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)	5. Audit Step			
7. Wobble How many degrees should the output rotate?  Babo of the speed should be used?  Comparison of the should be measured?  Comparison of the should be measured?  Babo Seek  Satat Delay  Condition Fastener  Condition Fastene	6. Controls			
How many degrees should the output rotate?   380   380   380   *   What tool speed should be used?   •    •	7. Wobble			
What tool speed should be used?         B         B         B         Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         13. Release Fastener         14. Finished! (Save the Job)	How many degree	s should the output	rotate?	
0       RPM         What is the maximum torque that should be measured?         0       NM         0       NM         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         14. Finished! (Save the Job)	What tool speed s	hould be used?		
What is the maximum torque that should be measured?  D MM  8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)  EXAMLEY	0	RPM		
0 NM 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 13. Release Fastener 14. Finished! (Save the Job)	What is the maxin	num torque that sho	uld be measured?	
8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 14. Finished! (Save the Job) STANLEY	0	NM		
9. Start Delay 10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 14. Finished! (Save the Job) STANLEY	8, Slow Seek			
10. Condition Fastener 11. Pre-Torque 12. Backout Fastener 13. Release Fastener 14. Finished! (Save the Job) STANLEY	9. Start Delay			
11. Pre-Torque 12. Backout Fastener 13. Release Fastener 14. Finished! (Save the Job) STANLEY	10. Condition Fastene	r		
12. Backout Fastener 13. Release Fastener 14. Finished! (Save the Job) STANLEY	11. Pre-Torque			
13. Release Fastener 14. Finished! (Save the Job) STANLEY	12. Backout Fastener			
14. Finished! (Save the Job) STANLEY	13. Release Fastener			
STANLEY	14. Finished! (Save the	e Job)		
	2 A		STANLEY	

#### 1.4.1.1.8 Slow Seek

Set output rotate (degrees), tool speed and maximum torque

t output rotate (degrees), to	ool speed and maximum torque.	Setup • Quick Start • Job Name • Task Definition • Task Name • Strategy • Audit Step • Controls - Wobble • Slow Seek
STANLEY	embedded Toolbox	lock to prevent further 🥼 💼 🖕
Show All	Quick Start	"Connection Type: Local
1. Job Hame		
2. Task Definition		
3. Task Name		
4. Strategy		
5. Audit Step		
6. Controls		
7. Wobble		
8. Slow Seek		
How many degrees should the output 180 ° What tool speed should be used? 0 RPM What is the maximum torgue that s	put rotate? should be measured?	
n NM		
10. Condition Fastener		
11. Pre-Torque		
12. Backout Fastener		
13. Release Fastener		
14. Finished! (Save the Job)		
	STANLET	

#### 1.4.1.1.9 Start Delay

Set delay time (seconds) and high torque.

- Quick Start
  - o Job Name
  - o Task Definition
- o Task Name
- o Strategy
- o Audit Step
- o Controls
- WobbleSlow Seek - Start Delay

ssembly Technologies		embedded v2.01	Toolbox 201		Connecti	ion Type:	Local
Show All	Pa	Quick rameter configuration wiza	Start rd for easy cor	ntraller setup			
1. Job Name							
2. Task Definition							
3. Task llame							
4. Strategy							
5. Audit Step							
6. Controls							
7. Wobble							
8. Slow Seek							
9. Start Delay							
What is the delay	time?						
What is the delay 0.25 What is the high to	time? Seconds						
What is the delay 0.25 What is the high to 0	time? Seconds orque?						
What is the delay 0.25 What is the high to 0	time? Seconds orque?						
What is the delay 0.25 What is the high to 0 10. Condition Fasteme 11. Pre-Torque	time? Seconds orque? NM						
What is the delay 0.25 What is the high to 0 10. Condition Fasteme 11. Pré-Torque 12. Backout Fastemer	time? Seconds orque? NM						
What is the delay 0.25 What is the high to 0 10. Condition Fasteme 11. Pré-Torque 12. Backout Fastemer 13. Release Fastemer	time? Seconds orque? NM						

#### 1.4.1.1.10 Condition Fastener

Set down torque target (NM), delay between steps (seconds), cycle abort time (seconds) and angle target (degrees).

- Quick Start o Job Name
  - o Task Definition
  - Task Name
  - o Strategy
  - Audit Step
  - o Controls
  - Wobble
  - Slow Seek
  - Start Delay
  - Condition Fastener

STANLEY ssembly Technolog	ies	embedded Toolbox v2.0RC1	Click'the lock to prevent further 🎴 📰 了 Connection Type: Loc
Show All	Paran	Quick Start	ntroller setup
1. Job Name			
2. Task Definition	1		
3. Task Hame			
4. Strategy			
5. Audit Step			
6. Controls			
7. Wobble			
8. Slow Seek			
9. Start Delay			
10. Condition Fast	ener		
What is the dou	vn torque target?		
What is the del	ay between steps?		
0.05	Seconds		
What is the cyc	le abort time?		
5	Seconds		
11. Pre-Torque			
12, Backout Faster	ner		
13. Release Faster	ner		

### 1.4.1.1.11 Pre-Torque

et target torque (NM) and delay between steps (seconds).	Setup • Quick Start • Job Name • Task Definition • Task Name • Strategy • Audit Step • Controls • Wobble • Slow Seek • Start Delay • Condition Fastener • Pre-Torque
STANLEY embedded Toolbox	prevent forther 🔚 🚃
Assembly Technologies v2,0RC1	Connection Type Local
Show All QUICK Staft Parameter configuration wizard for easy controller setup	
C. Lab House	
2. Task Definition	
3. Task Name	
4. Strategy	
5. Audit Step	
6. Controls	
7. Wobble	
8. Slow Seek	
9. Start Delay	
10. Condition Fastener	
11. Pre-Torque	
What is the target torque?	
0.05 Seconds	
12. Backout Fastener	
13. Release Fastener	
14. Finished! (Save the Job)	
STANLEY	

#### 1.4.1.1.12 Backout Fastener

Set output rotation (degrees), high torque (NM) and tool speed (RPM).

- Quick Start o Job Name
  - o Task Definition
  - Task Name
  - o Strategy
  - Audit Step
  - o Controls
  - Wobble
  - Slow Seek
  - Start Delay
  - Condition
  - Fastener
  - Pre-Torque
  - Backout
     Fastener

Show All Paramete	Quick Start er configuration wizard for easy co	introller setup
Parantet	er contrguration wizard for easy co	ntroller setup
1. Job Name		
1. Job Name		
1. Job Name		
2. Task Definition		
3. Task llame		
4. Strategy		
5. Audit Step		
6. Controls		
7. Wobble		
8. Slow Seek		
9. Start Delay		
10. Condition Fastener		
11. Pre-Torque		
12, Backout Fastener		
How many degrees should the output	rotate?	
1800 *		
What is the high torque?		
0 NM		
what tool speed should be used?		
0 RPM		
13. Release Fastener		
14. Finished! (Save the Job)		

It tool speed (RPM), output rotation (degrees) and maximum torque IM).	<ul> <li>Quick Start         <ul> <li>Job Name</li> <li>Task Definit</li> <li>Task Name</li> <li>Strategy</li> <li>Audit Step</li> <li>Controls</li> <li>Wobble</li> <li>Slow Seek</li> <li>Start Delay</li> <li>Condition Fastener</li> <li>Pre-Torque</li> <li>Backout Fastener</li> <li>Release Fastener</li> </ul> </li> </ul>
STANLEY embedded Toolbox	ither 🔒 📰 🔊
Assembly Technologies v2.0RC1	Connection Type: Local
Show All Quick Start	
1. Job Rame	
1. Job Name 2. Task Definition 3. Task Ilame 4. Strategy	
1. Job Name 2. Task Definition 3. Task Hame 4. Strategy 5. Audit Step	
1. Job Name 2. Task Definition 3. Task Name 4. Strategy 5. Audit Step 6. Controls	
1. Job Name 2. Task Definition 3. Task Name 4. Strategy 5. Audit Step 6. Controls 7. Wobble	
1. Job Name 2. Task Definition 3. Task Name 4. Strategy 5. Audit Step 6. Controls 7. Wobble 8. Slow Seek	
1. Job Name 2. Task Definition 3. Task Name 4. Strategy 5. Audit Step 6. Controls 7. Wobble 8. Slow Seek 9. Start Delay 4. Constitute Exchange	
1. Job Name 2. Task Definition 3. Task Name 4. Strategy 5. Audit Step 6. Controls 7. Wobble 8. Slow Seek 9. Start Delay 10. Condition Fastener 11. Pre-Torque	
1. Job Name         2. Task Definition         3. Task Name         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastemer         11. Pre-Torque         12. Backout Fastemer	
1. Job Name         2. Task Definition         3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener	
1. Job Name         2. Task Definition         3. Task Ilame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastemer         11. Pre-Torque         12. Backout Fastemer         13. Release Fastemer         What tool speed should be used?	
1. Job Name         2. Task Definition         3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Stow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         What tool speed should be used?         0         RPM         How many degrees should the output rotate?	
1. Job Name         2. Task Definition         3. Task Hame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         What tool speed should be used?         0       RPM         How many degrees should the output rotate?	
1. Job Name         2. Task Definition         3. Task Ilame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastemer         11. Pre-Torque         12. Backout Fastemer         13. Release Fastemer         What tool speed should be used?         0       RPM         How many degrees should the output rotate?         30       °         What is the maximum torque that should be measured?	
1. Job Name         2. Task Definition         3. Task Ilame         4. Strategy         5. Audit Step         6. Controls         7. Wobble         8. Slow Seek         9. Start Delay         10. Condition Fastener         11. Pre-Torque         12. Backout Fastener         13. Release Fastener         What tool speed should be used?         0       RPM         How many degrees should the output rotate?         30       *         What is the maximum torque that should be measured?         0       NM	

1.4.1.1.13 Release Fastener

### 1.4.1.1.14 Finished

se the save button Save	to record the recently defined	Setup • Quick Start
SKS.		<ul> <li>Job Name</li> </ul>
arameter Change Notice		<ul> <li>Task Definition</li> </ul>
arameters in the controller have changed. Do you wish to updat	e the	<ul> <li>Task Name</li> <li>Strategy</li> </ul>
Yes No		<ul> <li>Audit Step</li> <li>Controls</li> </ul>
se the export button Export	to make the defined tasks	- Wobble
vailable outside of this controller def	finition.	- Start Delay
le Download	×	Condition
		Eastener
Do you want to open or save this file?		
Name: jobs.xml Type: XML Document, 8.64KB From: localhost		- Backout Fastener - Release
Open Save Save	Cancel	Fastener - Finished
While files from the Internet can be useful, some files ca harm your computer. If you do not trust the source, do n save this file. <u>What's the risk?</u>	n potentially ot open or	
STANLEY en	Click the lock to prevent	forther 🚹 📠
Assembly Technologies	V2,0RC1	Connection Type: Local
1, Job Hame		
2. Task Definition		
3. Task Name		
4. Strategy		
5. Audit Step		
6. Controls		
7. Wobble		
8. Slow Seek		
9. Start Delay		
10. Condition Fastener		
12 Backout Fastanar		
13 Dalagea Esetapar		
14 Einished! (Save the Job)		
You have created a job that has a number of tasks list of the tasks that will be created is shown below	associated with it. A	
lask	Bolts	
Bott		
Save	Export	
	STANLEY	

#### 1.4.1.2 Jobs Management

Jobs Management configures tightening cycles with full controller capability to manage jobs, tasks and steps. The number of configurations appears directly following the name in parenthesis. The windows display the items already setup for the controller. To define a new setup, copy and modify an existing setup, step-by-step setup options are displayed below the highlighted active window.

Setups can be imported, exported or saved using the appropriate button at the bottom of the screen.

Imp	ont. ) (	Export	$\supset \subset$	Save	
Use the plus b	outton 🛨 to a	dd a new job, ta	sk or step.		

Use the minus button **L** to delete the selected job, task or step.

Use the duplicate button Duplicate to duplicate the selected job, task or step.

#### 1.4.1.2.1 Jobs

Jobs setup includes: job name, auto sequence task, auto reset job, enable error proofing and disable reverse on OK options.

#### Setup

- Quick Start
- Jobs Management
   o Jobs

STANLEY Assembly Technologies	embedded Toolbox	Click the lock to prevent further N kine and the controller of the controller Connection Types Loca
Show All	Jobs Management	
<b>Jobs (1)</b> [01] - JOB 1	Tasks (1) [01] - TASK 1	Steps (2) [01] - SLOW SEEK [02] - AUDIT
+ - Duplicate	+ - Duplicate	+ - Duplicate
JOB 1 What is the barcode ID?		
Would you like to auto sequence the tas	ks?	
Yes •		
Yes	2	
Import	Export	Save
	STANLEY	

#### Setup

Quick Start Jobs Management

#### 1.4.1.2.2 Tasks 1.4.1.2.2.1 General

General setup includes: task name, disassembly speed and disassembly acceleration. The date of last modification appears at the bottom of the screen.

#### Setup

# Quick Start Jobs Management

TANLEY     some Values     volation				o Task - Gene
Show All     Jobs Management     Jobs (1)     Tasks (1)     Steps (0)     [0]     Jobs (1)     Tasks (1)     Steps (0)     No Steps     No Steps </th <th>TANLEY sembly Technologies</th> <th>er</th> <th>nbedded Toolbox v2;0RC1</th> <th>he lock to prevent fuither 7</th>	TANLEY sembly Technologies	er	nbedded Toolbox v2;0RC1	he lock to prevent fuither 7
Jobs (1)       Tasks (1)       Steps (0)         [01]-JOB 1       [01]-       No Steps         * * Duplicate       * - Duplicate       * - Duplicate         * * Duplicate       * - Duplicate       * - Duplicate         1. General       .       .         A task is a collection of instructions, or steps, that define how the tool should perform the tightening process.       .         What name would you like to give to the task?       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .       .         .       .<	Show All	Jo Job co	obs Management	
[01]- JOB 1       [01]-       No Steps         + - Duplicate       + - Duplicate       + - Duplicate         1. General       .       .         A task is a collection of instructions, or steps, that define how the tool should perform the tightening process.       .         What name would you like to give to the task?       .         9999       RPM         What disassembly speed should be used?       .         3000       .         2. Units       .         3. Fastener Definition       .         4. Thresholds       .         5. Audit Definition       .	Jobs (1)	_	Tasks (1)	Steps (0)
* • Duplicate * • Duplicate * • Duplicate * • Duplicate     1. General   A task is a collection of instructions, or steps, that define how the tool should perform the tightening process. What name would you like to give to the task?   What name would you like to give to the task?   What disassembly speed should be used?   9999 RPM   What disassembly acceleration should be used?   3000   2. Units   3. Fastener Definition   4. Thresholds   5. Audit Definition	[01] - JOB 1	[01] -		No Steps
1. General         A task is a collection of instructions, or steps, that define how the tool should perform the tightening process.         What name would you like to give to the task?         What disassembly speed should be used?         9999       RPM         What disassembly acceleration should be used?         3000         2. Units         3. Fastener Definition         4. Thr esholds         5. Audit Definition	+ - D	uplicate	+ - Duplicate	+ - Duplicate
A task is a collection of instructions, or steps, that define how the tool should perform the tightening process. What name would you like to give to the task? What disassembly speed should be used? 9999 RPM What disassembly acceleration should be used? 3000 . Units . Fastener Definition & Thresholds . Audit Definition	Ceneral			
9999 RPM What disassembly acceleration should be used? 3000 300			k?	
3000 2. Units 3. Fastener Definition 4. Thresholds 5. Audit Definition Import Export Save	What disassembly speed s	hould be used?	k?	
3000 2. Units 3. Fastener Definition 4. Thresholds 5. Audit Definition Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler	should be used? ation should be us	k? ed?	
2. Units 3. Fastener Definition 4. Thresholds 5. Audit Definition Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler	should be used? ation should be use	k? ed?	
3. Fastener Definition 4. Thresholds 5. Audit Definition Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler	should be used? ration should be use	k? ed?	
4. Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler 3000 2. Units	should be used? ration should be use	k? ed?	
Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler 3000 2. Units 3. Fastener Definition	should be used? ration should be use	k? ed?	
Import Export Save	What disassembly speed s 9999 RPM What disassembly acceler 3000 2. Units 3. Fastener Definition 4. Thresholds	should be used? ration should be use	k? ed?	
	What disassembly speed a 9999 RPM What disassembly acceler 3000 2. Units 3. Fastener Definition 4. Thresholds 5. Audit Definition	should be used? ration should be use	k? ed?	

o Tasks

#### 1.4.1.2.2.2 Units

Units setup choices include: NM, FTLB, INLB, INOZ, KGM, KGCM, NCM and NDM. Setup • Quick Start • Jobs Management • Jobs

							- Gene - Units
STANLEY	logies		em	bedde	d Too	lbox	ck the lock to prevent further
Show All			Job Job conf	os Mar iguration	and m	ment anagement	
	Jobs (1)			Task	ks (1)		Steps (0)
[01] - JOB 1			[01] -				No Steps
-	+ - [	Puplicate	-		•	Duplicate	+ - Duplicate
t. General				-	-		
2. Units							
2 Eastoner Pet	finition						
3, Fastener Def 4. Thresholds	finition						
3, Fastener Def 4. Thresholds 5. Audit Definiti	finition ion						
3, Fastener Def 4. Thresholds 5. Audit Definiti	finition ion	Import		Ехро	ort	) (	ave

#### 1.4.1.2.2.3 Fastener Definition

Fastener Definition options include: batch counting fastenings, number of fastening to be batch counted and tool direction.

- Quick Start
- Jobs Management
  - $\circ$  Jobs
  - $\circ$  Tasks
    - General
    - Units
  - Fastener Definition

embly Techn	ologies	v2,0RC2			Connection Type:
	Jobs Management Job configuration and managemen		ent nagement		
	Jobs (1)	Tasks (1)		Step	s (0)
[01] - New	Job	[01] - New Task		No St	teps
	+ - Duplicate	+ - D	uplicate		- Duplicate
General					
Units					
Fastener De	efinition				
1					
1 /hat is the	tool direction of this ta	sk?			
1 /hat is the Clockwise (	tool direction of this ta: (CV/)	sk?			
1 Clockwise (	tool direction of this ta: (CW)	sk?			
1 Clockwise ( Thresholds Audit Defini	tool direction of this ta: (CM)	sk?			

#### 1.4.1.2.2.4 Thresholds

Threshold setup choices include: beginning torque threshold angle for **Setup** 

orque rate measurement a	and number of torque readings to	<ul> <li>average.</li> <li>Quick Star</li> <li>Jobs Mana</li> <li>Jobs</li> <li>O Tasks</li> <li>Genera</li> <li>Units</li> <li>Fastene</li> <li>Definition</li> </ul>
STANLEY Assembly Technologies	embedded Toolbox	Connection Type: Local
Show All	Jobs Management	
Jobs (1)	Tasks (1)	Steps (0)
fort-app it	folds.	No Steps
+ - Duplic	ate + - Duplicate	+ - Duplicate
1. General		
2. Units 3. Eastenet Definition		
4. Thresholds		
the task has begun?	rate measurement be calculated readings to average for the	
5 NM		
5. Audit Definition		
	mport Export Sa	ve
	STANLEY	

#### 1.4.1.2.2.5 Audit Definition

Audit Definition identifies the step for torque and/or angle audit.

Setup

- Quick Start
- Jobs Management

#### $\circ \ {\rm Jobs}$

- o Tasks
- General
- Units
- Fastener
- Definition - Threshold

- Audit Definition

embly Technologies		embe	dded Too v2.0RC1	Click Click		Connection Type:
how All		Jobs Jób configu	Manage	ment nanagement		
Jobs	(1)	Cross I.	Tasks (1)		Step	s (0)
[01]-30B 1		1011-			No St	eps
+ -	Duplicate	-	+ [-]	Duplicate	+	Duplicate
1. General						
2. Units						
3. Fastener Definition						
4. Thresholds						
What is the torque a	udit step?					
What is the torque a	udit step?					
What is the torque a LAST What is the angle au	udit step?					
What is the torque a LAST What is the angle au	udit step? • Idit step?					
What is the torque a LAST What is the angle au LAST	udit step? * Idit step?					
What is the torque a LAST What is the angle au LAST	udit step? 					
What is the torque a LAST What is the angle au LAST	udit step? • Idit step?					
What is the torque a LAST What is the angle au LAST	udit step? • Idit step?					
What is the torque a LAST What is the angle au LAST	udit step? • Idit step?					
What is the torque a LAST What is the angle au LAST	udit step?					
What is the torque a LAST What is the angle au LAST	udit step?					

#### 1.4.1.2.3 Steps 1.4.1.2.3.1 General

General identifies the step name. Setup Quick Start Jobs Management o Tasks o Steps - General STANLEY embedded Toolbox Assembly Technologies Local Jobs Management Show All Job configuration and management Jobs (1) Tasks (1) Steps (1) [01] - JOB 1 [01] -[01] - New Step + Duplicate + Duplicate Duplicate + 1. General A step is a single unit of work performed in a task. Each step define the specific work that the controller and the tool should perform. What name would you like to give to the step? New Step 2. Strategy 3. Torque Specification Limits 4. Angle Specification Limits 5. Tool Motor Control 6. Adaptive Tightening Control (ATC) 7. Target Controls 8. Soft Stop 9. Step Timers Import Export Save STANLEY

### 1.4.1.2.3.2 Strategy

Strategy choices include: 7 YIELD and AC/TA.	ГС/АМ, АС/ТМ, АС/ТС, ВАС	KOFF, RATE,	Setup • Quick Start • Jobs Management • Jobs • Tasks • Steps - General - Strategy
	embedded Toolbox	ick the lock to prevent further	
Show All	Jobs Management		mection type: Local
Jobs (1)	Tasks (1)	Steps (1)	a second second
[01] - JOB 1 + - Duplicat	[01] - te + - Duplicate	[01] - New Step	Duplicate
1. General			_
A strategy defines the type of inter controller and tool will have with th step. You may select a predefined s typical joint steps, or you may choo unconfigured. What strategy do you want to u TCAM	action and monitoring that the e bolt during the execution of the strategy, which accounts for most ase 'None' to leave the step ase on this step?		
3. Torque Specification Limits			
4. Angle Specification Limits 5. Tool Motor Control			
6, Adaptive Tightening Control (ATC)			
7. Target Controls			
8, Soft Stop			
store runers			
In	iport Export S	Save	
	STANLEY		

#### 1.4.1.2.3.3 Torque Specification Limits

Torque Specification Limits choices include: target torque, high and low torque limits, bail-out torque limit and minimum, snug torque limit and accumulate torque identification.

- Quick Start
- Jobs Management
  - o Jobs
  - o Tasks
  - o Steps
  - General
  - Strategy
  - Torque Specification Limits

mbly Techn	ologies	em	bedded T	<b>Foolbox</b>	Click the lock t		Connection Type;
		Jobs Management		gement d management			
-	Jobs (1)		Tasks	(1)	-	Steps	(1)
[01] - JOB 1		[01] -			[01] - New	/ Step	
	+ - Duplicate	-		Duplicate	-		Duplicate
General		-					
Strategy							
Torque Spe	cification Limits						
/hat is the	target torque?						
/hat is the 0 /hat is the	target torque? NM high torque limit?						
/hat is the 0 /hat is the 9999.9	target torque? NM high torque limit?						
/hat is the 0 /hat is the 9999.9 /hat is the	target torque? NM high torque limit? NM low torque limit?						
/hat is the 0 /hat is the 9999.9 /hat is the 0	target torque? NM high torque limit? NM low torque limit?						
/hat is the 0 /hat is the 9999.9 /hat is the 0 Angle Spec	target torque? NM high torque limit? NM low torque limit? NM						
2 vhat is the 0 vhat is the 9399.9 2 vhat is the 0 Angle Spec Tool Motor	target torque? NM high torque limit? NM low torque limit? NM ification Limits Control						
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	target torque? NM high torque limit? NM low torque limit? NM fication Limits Control ghtening Control (ATC)						
24 Anat is the 0 29999.9 24 Anat is the 0 Angle Spec Tool Motor Adaptive Tin Target Com	target torque? NM high torque limit? NM low torque limit? Mication Limits Control ghtening Control (ATC) rrols						
24 Analysian Content of Content o	target torque? NM high torque limit? NM low torque limit? fication Limits Control ghtening Control (ATC) rrols						
24 Analysis of Stop 29999.9 24 Analysis of Stop 24 Angle Spect 26 Angle Spect 26 Angle Spect 26 Angle Spect 27 Adaptive Th 28 Angle Conf 28 Angle Spect 29 Angle Spect 20 A	target torque? NM high torque limit? NM low torque limit? Mication Limits Control ghtening Control (ATC) rols						

#### 1.4.1.2.3.4 Angle Specification Limits

Angle Specification Limits choices include: target angle, high and low angle limits, bail-out angle limit and a check box to accumulate angle.

- Quick Start
- Jobs Management
  - o Jobs
  - o Tasks
  - o Steps
  - General
  - Strategy
  - Torque Specification Limits
  - Angle Specification Limits

ssembly Technologies	Jobs Management	Connection Type: L
Jobs (1) [01]- JOB 1	Tasks (1) [01] -	Steps (1) [01] - New Step
+ - Duplicate	+ - Duplicate	+ - Duplicate
1, General		
2. Strategy 2. Torque Specification Limits		
4 Angle Specification Limits		
• what is the high angle limit?		
9399.9 ° What is the low angle limit?		
5. Tool Motor Control		
6. Adaptive Tightening Control (ATC)		
7. Target Controls		
8. Soft Stop		
a, step filmers		

#### 1.4.1.2.3.5 Tool Motor Control

Tool Motor Control option identifies: tool speed, tool acceleration rate to speed, downshift torque, downshift speed and shutoff mode (Coast or Soft Stop).

#### Setup

- Quick Start
- Jobs Management

#### $\circ$ Jobs

- o Tasks
- o Steps

#### - General

- Strategy
- Torque
- Specification Limits
- Angle
- Specification Limits
- Tool Motor Control

STANLEY Assembly Technologies	embedded Toolbox v2.0RC1	Olickithe lock to prevent further 🎴 🔤 菞 Connection Type: Local
Show All	Jobs Management	t
Jobs (1) [01] - JOB 1	Tasks (1) [01]-	Steps (1) [01] - New Step
+ - Duplicate	+ - Duplicate	+ - Duplicate
1. General     2. Strategy     3. Torque Specification Limits     4. Angle Specification Limits     5. Tool Motor Control     You may change settings that control ho performing this step.     What speed should the tool run?     9999 RPM     How fast do you want the tool to con     3000 RPM/SEC	w the tool reacts while me up to speed?	
6, Adaptive Tightening Control (ATC) 7. Target Controls 8. Soft Stop		
9. Step Timers		
Import	Export	Save

#### 1.4.1.2.3.6 Adaptive Tightening Control (ATC)

Adaptive Tightening Control option identifies: downshift mode, starting and ending torque and ending speed.

#### Setup

- Quick Start
- Jobs Management
  - o Jobs
  - o Tasks
  - o Steps

### - General

- Strategy
- Torque Specification Limits
- Angle
- Specification Limits
- Tool Motor Control
- Adaptive
  - Tightening Control (ATC)

	Jobs Management			
now All	JODS Mahagement Job configuration and management			
Jobs (1)	Tasks (1)	Steps (1)		
[01] - JOB 1	[01] -	[01] - New Step		
+ - Duplicate	+ - Duplicate	+ : Duplicate		
General				
Strategy				
Torque Specification Limits				
Angle Specification Limits				
Tool Motor Control				
Adaptive Tightening Control (ATC)				
Adaptive Tightening Control (ATC) /hat downshift mode should be st	elected?			
Adaptive Tightening Control (ATC) /hat downshift mode should be so Disabled /hat is the starting torque for the	elected? • ATC algorithm?			
Adaptive Tightening Control (ATC) That downshift mode should be so Disabled • That is the starting torque for the 20 NM	elected? • ATC algorithm?			
Adaptive Tightening Control (ATC) That downshift mode should be so Disabled That is the starting torque for the 20 NM That is the ending torque for the solution of the soluti	elected? • ATC algorithm? ATC algorithm?			
Adaptive Tightening Control (ATC) That downshift mode should be se Disabled That is the starting torque for the 20 NM That is the ending torque for the second seco	elected? • ATC algorithm? ATC algorithm?			
Adaptive Tightening Control (ATC) That downshift mode should be so Disabled That is the starting torque for the 20 Phat is the ending torque for the 75 Target Controls	elected? • ATC algorithm? ATC algorithm?			
Adaptive Tightening Control (ATC) That downshift mode should be so Disabled That is the starting torque for the 20 Phat is the ending torque for the 75 Target Controls Soft Stop	elected? • ATC algorithm? ATC algorithm?			
Adaptive Tightening Control (ATC)  That downshift mode should be so  Disabled  That is the starting torque for the  20  NM  That is the ending torque for the so  7  Target Controls  Soft Stop  Step Timers	elected? • ATC algorithm? ATC algorithm?			

Setup

#### 1.4.1.2.3.7 Target Controls

Target Controls choices include yield and TRC targets.

#### Quick Start Jobs Management o Jobs o Tasks o Steps - General - Strategy - Torque Specification Limits - Angle Specification - Tool Motor Control - Adaptive Tightening Control (ATC)

			- Target Controls
STANLEY	embedded Toolbox	Click the lock to prevent further 🔒	
ssembly Technologies	V2/0RC1	Connect	ion⊤ype: Local
Show All	Jobs Management Job configuration and management	it.	
Jobs (1)	Tasks (1)	Steps (1)	
[01] - JOB 1	[01] -	[01] - New Step	
+ - Duplicate	+ - Duplicate	+ - Dup	icate
1. General			
2. Strategy			
3. Torque Specification Limits			
4. Angle Specification Limits			
5. Tool Motor Control			
6. Adaptive Tightening Control (ATC)			
7. Target controls			
What is the yield target?			
0 NM			
What is the TRC target?			
D NM			
8. Soft Stop			
9. Step Timers			
Import	Export	Save	

#### 1.4.1.2.3.8 Soft Stop

Soft Stop enables identifying the current off time, hold time and ramp time.

#### Setup

- Quick Start
- Jobs Management
  - $\circ$  Jobs
  - o Tasks
  - o Steps

### - General

- Strategy
- Torque Specification Limits
- Angle
- Specification Limits
- Tool Motor Control
- Adaptive
- Tightening Control (ATC)
- Target ControlsSoft Stop

STANLEY Assembly Technologies	embedded Toolbox v2.0RC1	Click the lock to prevent further 🄓 🔤 🤉
Show All	Jobs Management Job configuration and management	
Jobs (1) [01] - JOB 1	Tasks (1) [01]-	Steps (1) [01] - New Step
+ - Duplicate	+ + Duplicate	+ - Duplicate
1. General		
2. Strategy		
3. Torque Specification Limits		
5 Tool Mator Control		
6 Adaptive Tightening Control (ATC)		
7. Target Controls		
8. Soft Stop		
What is the current off time?		*
What is the current hold time?		
0.025 Seconds		
What is the current ramp time?		
9. Step Timers	-	
Imp	ort Export	Save
	(27)1123	

#### 1.4.1.2.3.9 Step Timers

Step Timers sets cycle abort time and elapse time between steps.

- Quick Start
- Jobs Management
  - o Jobs
  - o Tasks
  - o Steps
  - General
  - Strategy
  - Torque Specification
  - Limits
  - Angle Specification
  - Tool Motor Control
  - Adaptive
  - Tightening Control (ATC)
  - Target Controls
  - Soft Stop
  - Step Timers

STANLEY ssembly Technologies	embedded Toolbox v2.0RC1	Click the lock to prevent further 🎴 🔤 🥉 Connection Type: Loc
Show All	Jobs Management	
Jobs (1)	Tasks (1)	Steps (1)
(U) - JOB 1 + - Duplicate	101) - + - Duplicate	[U1] - New Step + - Duplicate
1. General		
2. Strategy		
3. Torque Specification Limits		
4. Angle Specification Limits		
5. Tool Motor Control		
5. Adaptive Tightening Control (ATC)		
7. Target Controls		
3. Soft Stop		
9. Step Timers		
You may specify the time values of i how the step performs over time. After how much time should the cy 10 Seconds How much time should elapse betw	certain properties that affect rcle abort? ween this step and the next?	
- Seconde		-
Import	t Export	Save
	STANLEY	

#### 1.4.1.3 System Management



#### 1.4.1.3.2 Triggers

Triggers controls operation, action and start mode of the multiple-function button (MFB).

Setup • Quick Start • Jobs Management • System Management

• General

embly Technologies		v2.0RC2	Connection Type:
how All		System Management	nent
l. General			
2. Triggers			
MFB Tap controls t on a hand held too	the operation o ol. Specify the (	f the multiple-function button desired action for a MFB tap.	
Reverse	-		
Specify the desire	d action for a M	1FB hold.	
Disabled	•		
Disabled Specify the start n	• node you wish	to use.	
Disabled Specify the start n Any	• node you wish	to use.	
Disabled Specify the start n Any	node you wish	to use.	
Disabled Specify the start n Any	rode you wish	to use.	
Disabled Specify the start n Any	node you wish	to use.	
Disabled Specify the start n Any	node you wish	to use.	
Disabled Specify the start n Any	node you wish	to use.	
Disabled Specify the start n Any	• node you wish	to use.	
Disabled	node you wish	to use.	

#### 1.4.1.3.3 Lights

Lights identifies mode a	nd headlight timer value.	Setup • Quick Start • Jobs Management • System Management • General • Triggers • Lights
STANLEY Assembly Technologies	embedded Toolbox	lock to prevent further <b>1</b>
Show All	System Management System configuration and management	
1. General		
2. Triggers 3. Lights		
What is the headlight timer	value?	
U		
4. Tones		
	Import Export Save	
	STANLEY	

#### 1.4.1.3.4 Tones

Tones sets sound options for accepted and rejected rundowns.

Setup • Quick Start • Jobs Management • System Management • General • Triggers • Lights • Tones

STANLEY seembly Technologies		embedded Toolbox v2.0RC2	Click the lock to prevent further
Show All		System Management	<b>t</b> ment
1. General			
2. Triggers			
3. Lights			
4. Tones			
Specify the tone y	ou wish to hear a	after a reject rundown,	
specity the tone y	iu wish to hear a	nter a rejett rundown,	
NOTO:			
	Import	Export	Save
		Export	

#### 1.4.1.4 Input / Output



Use the graphical button or table button to swap view options. Yellow highlight surrounds active button choice.

Configurations can be added, deleted, saved, imported, exported or printed using the appropriate button at the middle of the screen.

- Quick Start
- Jobs Management
- System
- Management
- Input / Output

v All	)	Input Input/Out;	/ Outpu	<b>t</b> tion	
		OK O Accept Low	D PM	r <b>c</b>	
		24 V	olt Output		
#	Hame	Word	Bit	Width	1
1	Off	0	0	1	
2	Off	0	1	1	
3	Off	0	2	1	
4	Off	0	3	1	
5	Off	0	4	1	
6	Off	0	5	1	
7	Off	0	6	1	
8	Off	0	7	1	
-					1
			_		
Ad	d Delete	Save Im	port	Export Print	
_					


## 1.4.1.4.2 Add/Insert/Delete Bit Assignments

To add a bit assignment at the end of list, click the add button

Add. There are eight maximum assignments available for the 24 volt options.

To add a bit assignment before a selected bit assignment, first select position with green highlight – click a line once using the left mouse

button – then click the insert button Insert (the add button changes to insert).

To remove a bit assignment, highlight and click the delete button



## Setup

- Quick Start
- Jobs Management
- System
- Management
- Input / Output

### 1.4.1.4.3 Function Palette: Bit Function Assignment

The Function Palette appears after selecting a bit assignment (left click once). To assign a function, double click it. Click the red X button 📕 in the right corner to close window.

### Setup

- Quick Start Jobs Management
- System



## 1.4.1.4.4 Bit Assignment Options

The options for a selected bit assignment's function appear at screen bottom. Activate field for changes by pointing to and left clicking field once using mouse pointer, then adjust.

Contact	Type:	۹.0.	•				Manag
Output T	ype:	Vormal	•				- input
Minim	um ON Time:	0					
				1	cia n	ie laid: La prevent fuirtrie	<u></u>
sembly Te	r chnologies	em	beade	d Toolbox		changes to the controlle	Connection Type:
Show All		I	nput	/ Output			
OTOW AI	/	Imp	ut/Outpi	it configuration			
1		OK	High Accept	PM			
	_	0	Low	H Output	-		
-	llame		Word	Bit	Width		-
1	In Cycle		0	0	1		
2	Off		0	1	1		
3	Off		0	2	1		
4	Off		0	3	1		
5	Off		0	4	1		
6	Off		0	5	1		
7	Off		0	6	1		
8	011		U	1	1		
		_			-		
Ins	ert Delete	Save	Imp	ort Expe	ort Pi	rint 🛛	
C	ontact Tuno	NO					
	oncourt apor	111.01	-				
		-					
1.0	utput type:	Normai	-				
		1	_				
	Minimum ON Time:	0					
0				-			
			STAN	LEY			

### Setup

- Quick Start
- Jobs ManagementSystem
- nent
- Dutput

## 1.4.1.4.5 Screen Examples 1.4.1.4.5.1 24 Volt Output

See page 83 for 24 volt assignable Output functions.

### Setup

Quick Start

- Jobs Management
  System
  Management
  Input / Output

nbly Te	echnologies	em	Deade	lorcz	Changes to the controller Connection Type:
ow All		Inp		/ Output	
		OK	High Accept Low	S PM	6
-	1		24 Vo	lt Output	The second se
77	Name	_	Word	Brt	width
1	in Cycle		0	0	1
4	01		0	1	
3	Off		0	2	1
5	Off		0	4	1
6	Off		0	5	1
7	off		0	6	1
8	Off		0	7	1
Ins	ert Delete	Save	Imp	ort Exp	ort Print S
C	contact Type;	N.O.		•	
* 0	)utput Type:	Normal		Ŧ	
	Minimum ON Timor	0			
	Minimum ON TIME.				

### 1.4.1.4.5.2 24 Volt Input

See page 82 for 24 volt assignable Input functions.

Setup

 Quick Start Jobs Management

System

Management • Input / Output

bly Te	chnologies	embedde v2	ORC2	Connection Typ
w All		Input Input/Outp	/ Output	
		OK Accept		
		24 V	olt Input	
#	Name	Word	Bit	Width
1	Start	0	0	1
2	Select Job	0	1	t
3	Select Task	0	2	1
4	Job Select Bit	0	3	1
5	Task Select Bit	0	4	1
6	Job Verify	0	5	4
7	Task Verify	0	6	1
8	Stop	0	7	1
-				
Ins	ert Delete	Save	ort Exp	ort Print Print
			_	
С	ontact Type:	N.O.	-	

#### 1.4.1.4.5.3 Fieldbus Output

See page 83 for fieldbus assignable Output functions.

Setup

 Quick Start Jobs Management

System

Management

Input / Output

ANLE nbly Te	Y chnologies	embedd	ed Toolbox	Click the lock to prevent further ' 🛓 🔤 Connection Typ	
ow All		Input Input/Outp	/ Output ut configuration		
		OK Accept Low	PM		
		Fieldb	us Output	the second s	
#	Name	Word	Bit	Width	
3	Job Selected	0	2	4	
4	Torque	0	3	16	
5	Task Selected	1	3	4	
6	Torque High	1	4	1	
7	Angle Low	1	5	1	
8	Parameter	1	6	16	
9	Start Trigger	2	6	1	
10	Snug Achieved	2	7	1	
11	Cycle OK.	2	8	1	
12	In Cycle	2	9	1	
Ins	ert Delete	Save Imp	ort Exp	ort Print 🗾 📂	
• 0	utput Type:	Normal			
	Minimum ON Time:	0			

### 1.4.1.4.5.4 Fieldbus Input

STANLEY

See page 82 for fieldbus assignable Input functions.

Setup

- Quick Start Jobs Management
- System
- Management Input / Output

	• Input / Outpu	11
x	Click the lock to prevent further 🔒 📰 🗟	
	Connection Type: Local	
on		

		OK Accept Low	PM	TC	
		Field	ous Input		
#	Name	Word	Bit	Width	-
5	Start	0	4	1	
6	Reset Job	0	5	1	
7	Reverse	Ō	6	1	
8	Disable Task	0	7	1	
9	Task Verify Bit	0	8	1	
10	Part ID	0	9	1	
11	Reset Result Status	0	10	1	1
12	Ignore	0	11	1	
13	Stop	0	12	1	
14	Disable Tool	0	13	1	
Ins	ert Delete	Save Imp	ort C	Export	
с	ontact Type:				
С	ontact lype:				
С	ontact lype:				

embedded Toolbo

## 1.4.1.4.5.5 Modbus TCP Output

See page 83 for Modbus TCP assignable Output functions..

Setup
<ul> <li>Quick Start</li> </ul>
<ul> <li>Jobs Management</li> </ul>
<ul> <li>System</li> </ul>
Management
<ul> <li>Input / Output</li> </ul>

nbly Technologies			v2	UORC2	Connection Type:
w All		II Inpo	nput ut/Outpu	/ Output ut configuration	
		ок	High Accept Low	PM FAVATC	
		M	odbus	TCP Output	
#	Name		Word	Bit	Width
8	Tool Running		0	7	1
9	Disassembly Detected		0	8	1
10	Task Select Bit		0	9	1
11	Torque OK		0	10	1
12	Torque High		0	11	1
13	Torque Low		0	12	1
14	Fault Code		0	13	16
15	Start Trigger		1	13	1
16	Step Bit		1	14	1
17	Cycle Stopped		1	15	1
Ins	eert Delete	Save N.O.	Imp	ort Exp	ort Print 🗾 📁
۳ c	output Type:	Normal		•	
	Minimum ON Time:	0			

### 1.4.1.4.5.6 Modbus TCP Input

See page 82 for Modbus TCP assignable Input functions.

Setup Quick Start Jobs Management System Management • Input / Output

-		OK Accept	PM DIATC		-
		Modbus	TCP Input	1	
#	Name	Word	Bit	Width	
2	Select Job	0	1	1	-
3	Reset Result Status	0	2	1	
4	Start	0	3	1	
5	Disable Task	0	4	1	
6	Job Verify	0	5	1	
7	Part ID	0	6	1	-
8	Stop	0	7	1	
	a second design of the second		0	4.1	
9	Ignore	U	0	4	
9 10	Ignore	0	9	1	
9 10 11 Ins	Ignore Ignore Ignore	Save Imp	9 10 ort Exp	oort Print	
9 10 11 Ins	Ignore Ignore Ignore ert Delete	Save Imp	9 10 ort Exp	port Print	
9 10 11 Ins	Ignore Ignore Ignore ert Delete	Save Imp	ort Exp	port Print	
9 10 11 Ins	Ignore Ignore Ignore ert Delete pontact Type:	Save Imp	9 10 ort Exp	port Print	
9 10 11 Ins	Ignore Ignore ert Delete ontact Type:	Save Imp	ort Exp	aort Print	
9 10 11 Ins	Ignore Ignore ert Delete ontact Type:	Save Imp	ort Exp	port Print	
9 10 11 Ins C	Ignore Ignore ert Delete ontact Type:	N.O.	9 10 ort Exp	port Print	
9 10 11 Ins	Ignore Ignore ert Delete	N.O.	ort Exp	port Print	
9 10 11 Ins Ci	Ignore Ignore ert Delete	N.O.	ort Exp	port Print	
9 10 11 Ins Cl	Ignore Ignore ert Delete ontact Type:	N,O.	ort Exp	port Print	
9 10 11 Ins	Ignore Ignore Ignore ert Delete ontact Type:	N.O.	ort Ext	nort Print	
9 10 11 Ins	Ignore Ignore ert Delete ontact Type:	N.O.	ort Exp	nort Print	





#### 1.4.2.1 Rundown Analysis

Rundown Analysis display options include the controller rundown, traces, summary statistics, histogram and x-bar/range. Prior rundown results are shown at screen bottom with results not included in the statistics struck out.

Use the buttons located at the middle right of screen to swap view options (Rundown, Trace, Statistics, Histogram and Xbar/range). Yellow highlight surrounds active button choice.



Appendix A – Embedded Toolbox

Use the buttons located at the middle left of screen to import, export and print rundowns.

Import Export Print

### 1.4.2.1.1 Rundown

The Rundown view displays details for current rundown.

Click on the information icon **()** to choose either torque or angle data. After making data selections, click the green check to accept or the red x to abort. Click the information icon again to close.

Global Se	itings 🔣 🚺
Statistical Data Set:	Torque • Angle
Job:	1
Task:	1
Population Size:	25
Subgroup Size:	5
Number of Bars:	20
Xucl:	17
Xici:	12
Rucl:	3
plate	

Analyze

Rundown Analysis
 Rundown



TANLEY sembly Technologies	embedded Toolbox Click the lock to prevent further 归 📟 v2.0RC1 Connection Type
Show All	Rundown Analysis
0	OK Accept
	Rundown
	and a second
1.1.1	•
Job Task	
Import Export	
Subgroup Date	Time Job Task Torque Angle

## 1.4.2.1.2 Trace

The Trace view displays a plot of selected tightening variables.

Click on the information icon 🖸 to show data point information at the location of the vertical cursor. Click again to remove the information. The right or left arrow keys move the cursor on the X axis to different data points (hold the shift key to increase movement).

Analyze

• Rundown Analysis

o Rundown

o Trace



Rundown Analysis

RundownTrace

Analyze

### 1.4.2.1.2.1 Axis Torque vs. Time Selected

The Trace displayed reflects the rundown selected below the screen. To adjust magnification area, position mouse pointer below the x-axis (pointer changes from an arrow to a hand).

4 61 116 174 231 288 345 461 436 515 572 628 465 742 799 855

Next press and hold left mouse button, drag left or right to highlight, then release to display.

ANLI mbly T	EY echnologie	36		ember		olbox	personal table	ert jather paragoler Dorect	Son Type
ow Al	D			Runde	own An	alysis			
0	)			OK Acc	ept	MATC			
Te	rque	1		Tor	que / Time	:	-		
10									
75								A	- 1
87									
								1	
								1	
18							N	9	
26									
38							6	h.	4
							/		A III
2,5							1		11
68							1		All
70							1	R.	1
							1		
	_	_	_		_			_	
1	- en - en	1 174 231	288 345 40	452 51	9 572 60 Time unit	88 1583 742	TES 855 812	909 1026 1082	
-	-		-		anne pre-	-			- 10
In	port	Export	Print						-
1	Subgroup	Date	Time	Spindle	PSet	Torque	Torque Low Limit	Torque High Lim	It
A.,	5	1980-01-01	01:54:41	1	1	8.75	N/A	N/A	
	5	1980-01-01	01:52:53	4	1	8.70	N/A	N/A	
	-	1020 01 01		+	*	-10.12	-	-	
	5	1980-01-01	01:50:09	1	1	8.73	N/A	N/A	
	5	1980-01-01	01:49:48	4	1	8.64	N/A	N/A	
	5	1980-01-01	01:49:12	x	1	8.56	N/A	N/A	
		1000-01-01	01-48-20	1	1	9.20	N/A	NZA	1.7
	4	1000-01-01							100

### 1.4.2.1.2.2 Initial Magnification



• Rundown Analysis

o Rundown

o Trace o Statistics

TTT

Analyze

### 1.4.2.1.3 Statistics

The Statistics view displays statistical overview summary.

Click on the information icon ① to choose either torque or angle data. After making data selections, click the green check to accept or the red x to abort. Click the information icon again to close.

GIUDAI Se	
Statistical Data Set:	Torque • Angle
Job:	1
Task:	ali <b>l</b> in di la
Population Size:	25
Subgroup Size:	5
Number of Bars:	20
Low 1 Xucl:	017
High Ald:	12
Ruch	03
Ricl:	-0



9.20

N/A

N/A

1

1980-01-01

4

4

01.48:20

1

1

STANLEY

## 1.4.2.1.4 Histogram

The Histogram view shows the histogram for torque or angle.

Click on the information icon ① to choose either torque or angle data. After making data selections, click the green check to accept or the red x to abort. Click the information icon again to close.

Clobal Se	ttings Au
Statistical Data Set:	Torque 💿 Angle
Job:	1
Task:	1
Population Size:	25
Subgroup Size:	5
Number of Bars:	20
Xucl:	17
Xich	12
Rucl:	3
Ricl:	0



- Rundown Analysis
  - o Rundown
  - o Trace



nbly T	echnologie	36	2.	embed	Ided To	olbox	(h) ti bateric	Confunt Donn citie	i Ve
w Al	D			Rundo	own An	alysis			
6	1		-	OK Acc	h ept 💡	Marc			
~				Lov	y	THATC		_	
	iulaten		_	Ris	stogram				•
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	4 844	127 840 844		3.96 6.8	and an	nidel ilda da	26 0.00 0.000 0.00	1 2.004 2.15 Q	
In	4 KAN	er and an Export	2014 2hi	14 ele	and and	adeet add ba	e ou icei icei		
In	4 state	Ler and and Export Date	AGY 4 H	3.745 e.e. Spindle	aani aani	adeet stor as References	e sau soes aas	a des a si a	
In	4 LAM Iport Subgroup 5	127 3245 324 Export Date 1980-01-01	Acros 4 ha	she ar Spindle	oars oars Poet 1	addet also das Torque 8.75	e our oce our Torque low Limit N/A	adoni a isi Dependenti Torque High Limit N/A	
Im	4 KAS Subgroup 5 5 5	Export Date 1980-01-01 1980-01-01	Adm 111 Print Time D1:54:41 D1:52:53	she are Spindle	east east Poet 1	466 167 30 Torque 8.75 8.70	torque Low limit N/A N/A	taon an Torque High Limit N/A N/A	
In and	4 (Lás) Inpart Subgroup S S S	Export Date 1980-01-01 1980-01-01 1980-01-01	Agent 191 Print Dar54:41 D1:52:53 D1:50:44	Spindle 1 1	PGet 1 1	4.664 1.52 4.0 Torque 8.75 8.70 -10.53	torgue Low Umit N/A N/A N/A	Torque High Limit N/A N/A	
In	A LAS	107 344 344 Export Data 1980-01-01 1980-01-01 1980-01-01	AGAN 411 Print Time D1:54:41 D1:52:53 <del>D4:50:44</del> D1:50:09	Spindle 1 1 1	ade and POAt 1 1 1	1.64 1.62 0.0 Torque 8.75 8.70 -10.13 8.73	Baa 0.053 0.01 Torque Low Limit N/A N/A N/A N/A	Torque High Limit N/A N/A N/A	
In	A LAS subgroup S S S S S	107 542 544 Export Data 1980-01-01 1980-01-01 1980-01-01 1980-01-01	Print Print Time 01:553:411 01:52:53 01:50:09 01:49:48	stret and spindle 1 1 1 1	Bate Dati	4.64 4.62 4.4 Torque 8.75 8.79 	B44 8.053 8.44 Torque Low Limit N/A N/A N/A N/A N/A	aced and a Torque High Limit N/A N/A N/A N/A N/A	
In	A Adda Ippart Subgroup S S S S S S S	Export Dob 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01	Print Print Dir54:41 01:52:53 01:50:09 01:49:48 01:49:12	Spindle I I I I I I I I	Bad aat PSet 1 1 1 1 1	1.00 1.02 1.0 Torque 8.75 8.79 1.1.5 8.73 8.64 8.56	644 8453 844 Torque Low Limit N/A N/A N/A N/A N/A N/A	5001 2.51 0 Torque High Limit N/A N/A N/A N/A N/A N/A N/A	

### 1.4.2.1.5 X-Bar/Range

The X-Bar/Range view uses the information icon ① to display a dropdown showing either torque or angle data. Click on the information icon ① to choose either torque or angle data. After making data selections, click the green check to accept or the red x to abort. Click the information icon again to close.

Global Se	ttings	
Statistical Data Set: (	Torque	Angle
Job:	1	
Task:	1	
Population Size:	25	
Subgroup Size:	5	
Number of Bars:	20	
Xucl:	17	
Xici:	12	
Rucl:	3	
Rici:	0	

#### Analyze

- Rundown Analysis
  - o Rundown
  - o Trace
  - o Statistics
  - o Histogram





nbly Tec	hnologie	36		embed	dded To	olbox	dranges (z. (h	Come lan	
w All	)		_	Rundo	own An	alysis			
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				1					
				/					
			1						
			1						
-	-		1						
			/	_	Range				
				-	Range	•			
1 - 1			/		Range				
			/		Range				
					Range		4		
		Event	4		Range		*		
a Imp		Export	t. Print		Rango		- 		
Imp	Ort	Export Date	Print Dissidation	Spindle	Range 3 Subcours PSet	Torque	Torque Low Limit Norque Low Limit	Torque High Limit	
Imp	Ort Subgroup 5	Export Dot 1980-01-01 1980-01-01	Print Dire D1:54:41 D1:52:53	Spindie I	Range Best I	Torque 8.75 8.70	Torque Low Limit N/A	Torque High Limit N/A	1
Imp	Ort Subgroup 5 5	Export Date 1988-01-01 1988-01-01	Print Dis64:41 01:52:53 01:50:11	Spindle 1	Range Beet 1 1	Torque 8.75 8.70	Torque Low Limit N/A N/A	Torque High Limit N/A N/A	
imp a	art Subgroup S S	Export Date 1980-01-01 1980-01-01 1980-01-01	Print D1:54:41 01:52:53 U1:50:09	Spindle	Ranco Poet 1 1	Torque 8.75 8.70 	Torque Low Umit N/A N/A N/A	Torque High Limit N/A N/A N/A	
Imp	Ort Subgroup S S S S S	Export Date 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01	Print Time D1:54:41 01:52:53 U1:50:09 D1:49:47	Dpindle 1 1 1	Rance Background Poet	Torque 8.75 8.70 10.43 8.72 8.72 8.64	Torque Lox Umit N/A N/A N/A N/A N/A	Torque High Limit N/A N/A N/A N/A	
Imp	Ort Subgroup S S S S S S	Export Date 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01	Print Time 01:54:41 01:52:53 01:50:09 01:49:48 01:49:49	Spindle 1 1 1 1	Range PBet 1 1 1 1	Torque 8.75 8.70 10.43 8.73 8.73 8.64 8.64 8.64	Torque Lox Umit N/A N/A N/A N/A N/A N/A	Torque High Limit N/A N/A N/A N/A N/A	
Imp	Cort Subgroup S S S S S S S S S S S S S S S S	Export Date 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01 1980-01-01	Print Time D1:54:41 D1:52:53 D1:50:09 D1:49:48 D1:49:48 D1:49:48	Dpindle 1 1 1 1	Range Beet 1 1 1 1 1	Torque 8,75 8,70 19,43 8,73 8,64 8,56 9,20	Torque Low Umit N/A N/A N/A N/A N/A N/A N/A	Torque High Limit N/A N/A N/A N/A N/A N/A N/A	

### 1.4.2.2 Tool Diagnostics

Tool Diagnostics displays tool torque, current, temperature, angle and speed. Setup and pass/fail data for rundowns done while the screen is active are listed. Exiting the screen erases the data.

#### Analyze

- Rundown Analysis
- Tool Diagnostics



#### 1.4.2.3 I/O Diagnostics

I/O Diagnostics displays input and output.

## Analyze

Rundown Analysis

Tool Diagnostics I/O Diagnostics

Use the graphical button with or table button to swap view options. Yellow highlight surrounds active button choice.

embly Technologies		I/0	Diag	gnos	Connettion Type:	
1		OK Ac	ur ana gh cept	e pi		
		2.	4 Volt	Outp	ut	10 mil
#	llame	W	ord	Bit	Width	State
1	Off	0		0	1	0
2	Off	0		1	1	0
3	Off	0		2	1	0
4	Off	0		3	1	0
5	Off	0		4	1	0
5	Off	0		5	1	0
6	Off	0		7	4	0
0	On	0		1	1	0
-		h =	_			

## 1.4.2.3.1 Configuration Dropdown

Use the dropdown to choose a configuration to view.

#### Analyze Rundown Analysis Tool Diagnostics 24 Volt Output I/O Diagnostics 24 Volt Input Fieldbus Output Fieldbus Input Modbus TCP Output Modbus TCP Input STANLEY embedded Toolbox Assembly Technologies I/O Diagnostics Show All Input/0 utput an sis and stimulus OK GACCEPT Low S PM Nam 24 Volt Output Off 24 Volt Input Off 2 3 Fieldbus Output Off Off 4 5 Off Modbus TCP Output Off Modbus TCP Input Off Off 20

### 1.4.2.3.2 Options

Contact Type: N.O.

Output Type: Normal
 Minimum ON Time: 0

The options for a selected bit assignment's function appear at screen bottom.

#### Analyze

- Rundown Analysis
- Tool Diagnostics
- I/O Diagnostics

cle y sembly Detected elect Bit elect Bit elect Bit iomplete iomplete	OK B High Accept Low 24 Volt 0 0 0 0 0 0 0 0 0 0 0 0 0	Output Byte 0 0 0 0 0	Bit D 1 2 3	Width 1 1 1	State 0 1 0
cle y sembly Detected elect Bit elect Bit elect Bit iomplete iomplete	24. Volt 0 0 0 0 0 0 0	Output Byte 0 0 0 0 0 0	Bit 0 1 2 3	Width 1 1 1	State 0 1 0
: sembly Detected elect Bit elect Bit elect Bit iomplete complete	Word 0 0 0 0 0 0 0	Byte D D D D D D D	Bit 0 1 2 3	Width 1 1 1	State 0 1 0
cle y sembly Detected elect Bit elect Bit iomplete complete	0 0 0 0 0	0 0 0 0 0	D 1 2 3	1 1 1	0 1 0
y sembly Detected elect Bit elect Bit iomplete iomplete	0 0 0 0	0 0 0 0	1 2 3	1	1
sembly Detected elect Bit elect Bit elect Bit complete complete	0 0 0 0	D 0 0	2	1	0
elect Bit elect Bit elect Bit omplete omplete	0 0 0	0 0	3	1	0
elect Bit elect Bit iomplete iomplete	0	0	1.27		D.
elect Bit iomplete iomplete	0		4	1	0
omplete omplete		0	5	1	0
omplete	D	0	6	1	0
	0	0	7	1	1
_	_		-		
:Type: N.O. Type: Normal num ON Time: D					
t	t Type: N.O. Type: Normal num ON Time: O	t Type: N.O. Type: Normal num ON Time: 0	t Type: N.O. Type: Normal num ON Time: 0	t Type: N.O. Type: Normal num ON Time: O	t Type: N.O. Type: Normal num ON Time: O

#### Appendix A – Embedded Toolbox



#### 1.4.4 Service



Tool Configuration Update enables upgrading tool configuration information for currently attached tool.





STANLEY Assembly Technologies	embedded Toolbox V2.0RC1 Clickethe lock to prevent furthet	Local
Show All	Tool Configuration Update	
1. Welcome		
2. Choose Fil	ė	
Please se the tool's	lect a tool data file. This file will be used to update data. Browse	