



Smart-Control Box v4.3B with PSX Torque Arm **Operator Manual**

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1 Introduction

1.1 Contact Information

If any service is required on the equipment, contact Blackstone Global Service Department during normal business hours (9am-5pm, Monday-Friday):

Blackstone Global Service Department – (978) 455-0672

If you are calling after-hours, leave a detailed message and our service department will contact you on the following business day.

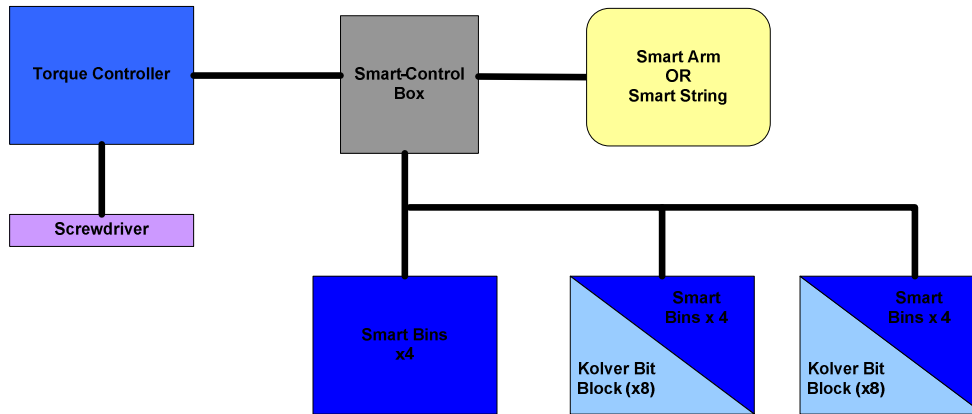
If you have a less critical support question, contact us through e-mail:

Contact email - crobertson@blkcorp.com

A response to the question will be sent within 48-hours.

1.2 Smart-Control Overview

The Smart-Control box is the common interface that controls all the accessories that are connected to it for manual assembly processes. The Smart-Control box may control several devices at once and can function in difference error proofing modes. The system configuration of the Smart-Control box is shown below. The control box can be configured to work with as many or as little peripheral devices as needed to suit the application.



The Smart-Control box may function in two different run modes.

1. Run Mode of the Smart-Control box is called Torque Control Mode. This mode is used to set the program of the torque driver controller based on position or bin pick. Bin pick only selects torque if no tool location device is present, otherwise bin pick and bit selection are only verified and do not control torque.
2. The second Run Mode of the Smart-Control box is called Sequential Control. This mode allows the steps of the assembly sequence to be taught into the controller. Depending on the configuration of the Smart-Control box, each input device may be used to either verify a step or set a torque.

For a more detailed explanation on the functionality of the Smart-Arm, Smart-Bits and Smart-Bins, see the Operations Manual for each of the individual products.

The Smart-Control box currently supports all Kolver digital controllers and many Atlas Copco tool controllers. Additional control boxes may be available for alternate screwdriver controllers

1.3 Safety

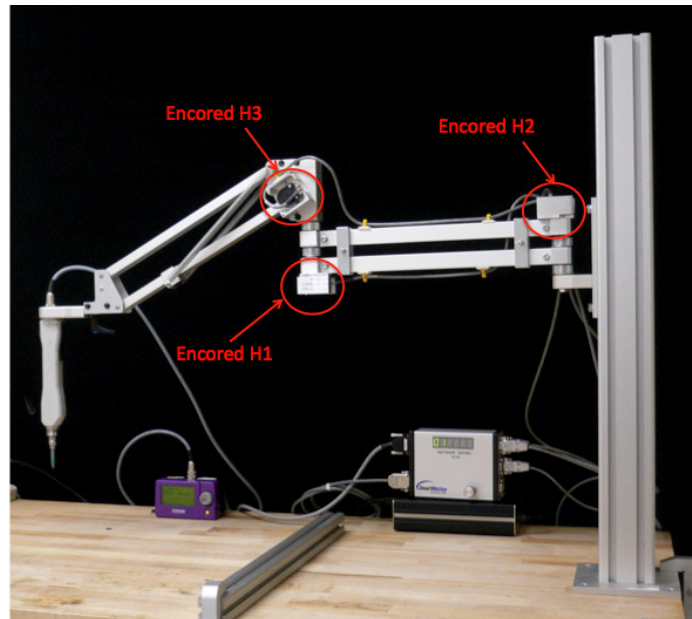
Observe all warning labels and signs. Do not attempt to service the Smart-Control box.

2 Initial Setup

- 2.1: **Unpacking, inspection & setup.** The Smart-Arm should be inspected when it is first unpackaged. The shipment should include the torque arm with three encoders installed, one at each pivot point. Each encoder will have a cable with aluminum protective cover with integrated strain relief. Each encoder is labelled for easy identification. The control box should have a mounting bracket on the back for easy installation onto the pillar. It is recommended that the pillar be secured to the bench with fasteners.

Once the inspection is complete mount the Smart-Control box to the pillar with the hardware supplied. The encoder cables will connect to the Smart Control box. Each cable connector will be labelled with the appropriate connection location on the box.

The image below shows the location and connection name for each encoder



- 2.2: **System Setup.** It is recommended that parts being assembled with the Smart Arm system be fixture in place. This will ensure the most accurate positional monitoring and repeatability for the arm. The actual location of the fixture will be up to the end user, however in order to complete the "SETORG" process (described in detail in Section 2.4) it is required that either the fixture or a calibration plate have two calibration holes. If holes cannot be drilled on the part fixture then a stand alone calibration plate will need to be manufactured or purchased from KolverUSA.

The location of these holes is very critical to the successful completion of the SETORG process.

The calibration holes should be positioned as follows:

- 1) The first hole (Hole A) should be inline with the pillar and more specifically inline with encoder H2. The distance from the base of the pillar is not as critical, for the PS2 a good distance will be 20 inches or approximately 500mm.
- 2) The second hole (Hole B) must be located to the right and in line with the first hole. The default distance between the holes is 450mm, we recommend a value between 300-450mm.

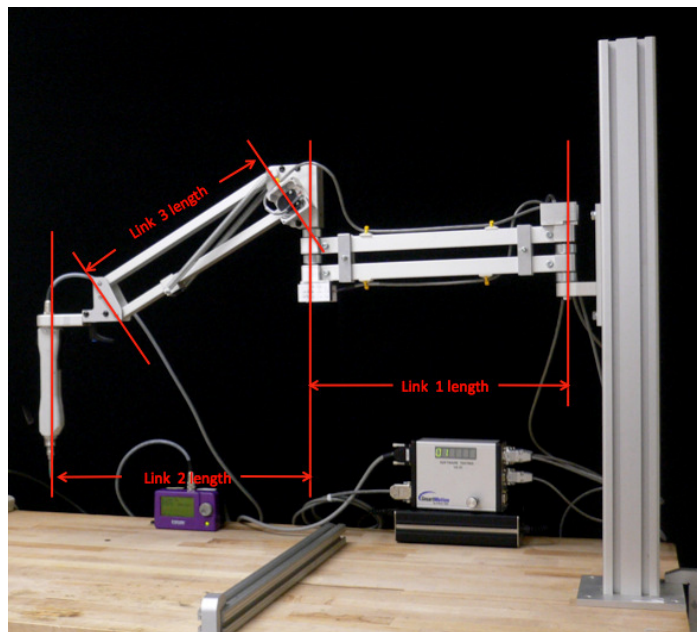
- 2.3 **Power on/off.** Power for the Smart-Control is supplied by the screwdriver control system. To power up the system, turn on the power switch on the screwdriver controller. The Smart-Control unit will turn on automatically. For units functioning without a screwdriver controller, a separate power supply will be required. To power off the system, turn off the power switch on the screwdriver controller. The control unit will also turn off

Note: The Smart-Control box will function differently depending on the configuration. See the operations manual of your configuration.

- 2.4 **System Calibration and setup (SETORG).** To setup and calibrate the system the lengths of the individual sections of the torque arm must be known and entered. There are actually four required dimensions in order to complete the process successfully, Link1, Link2, Link3 and CALLEN. The image below indicates the location for each dimension. The CALLEN value is the actual distance between the two calibration holes detailed in Section 2.2. For the PS2 arm, the Smart Control has the correct link lengths for Link1 and Link3. The dimension of Link 2 will actually be calculated during the SETORG process. Default value of CALLEN is 450MM, this value must match the distance between the calibration holes.

2.4.1: Entering link lengths: The maintenance menu includes items LINK1, LINK2, LINK3, CALLEN that allow to set link lengths and distance between calibration points on the calibration angle (see image below). You must login to the Maintenance Menu as detailed in Section 4.2 All value must be entered in millimetres. As previously mentioned, the dimensions for Link 1 and Link 3 for the PS2 arm are already the default value. These need only be changed if a different arm is used. Link 2 will be calculated but the CALLEN value must be verified and entered.

The image below shows a description of the link lengths:



2.4.2: Set Origin: When logged into the full Maintenance menu, as you scroll through you will see “SETORG”
Once selecting this item you will proceed through the process as detailed below.

1. “ORIG-Z” – move arm up so that the arm is completely horizontal, then press button
2. “ORIG-L” – move tool bit to Hole A so the arm is in the left orientation, i.e. arm bent to the left, press button (this is calibration point A, it will become coordinate 0,0)
3. “ORIG-R” – Rotate arm to right orientation, i.e. arm bent to the right and maintain the tool bit at Hole A, press button.
4. “ORIG-b” – Keeping the arm in the right orientation as the last point, move the tool bit to Hole B, and press button. This point is calibration point B and will become coordinate ddd,0 where ddd is distance from the calibration point A as detailed in the CALLEN value. The Smart box software will estimate the position measurement error and display it as “E x.x” where x.x is estimated error in millimetres. For example “E 1.6” means that the error is approximately 1.6 millimetres. Under normal operating conditions an error of less than 4mm shall be acceptable. If the download option is being used, this error should be 2.0mm or less. The dimension of Link 2 will be calculated and stored in the Smart box.

After calibration the tool position will be reported in the maintenance menu, under items x,y in millimeters. The calibration point A is 0,0. The calibration point B should have y coordinate zero.

It is important that the link lengths and calibration distance (distance between calibration points A and B) are set precisely before set origin procedure is started.

3 Operating Modes

The Smart-Control box may operate in 2 different Run Modes, Torque Control Mode and Sequence Control Mode. Torque Control Mode comes standard with the Smart-Control box, Sequence Control Mode is an optional add-on to the device.

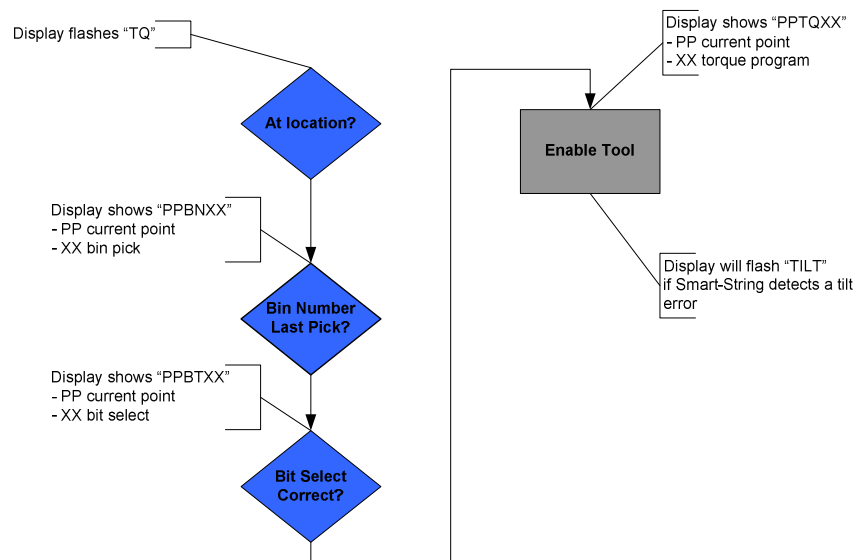
3.1 Torque Control Mode - Overview

Torque Control mode is the standard mode of operation and is used to set the torque during assembly based on peripheral inputs. In this mode, up to 40 points and up to 5 recipes can be taught on the controller. Each point will set a torque based on either tool position, bit or bin pick. Bit selection at each point may be verified if a bit block is present. Each recipe is a set of 40 points, unless the memory upgrade has been purchased (see the memory upgrade section for details).

Tool location is the default parameter for setting the torque program on the controller. Therefore, when the Smart-Control box is configured the torque program will be set based on the location of the device. When Smart-Bits or Smart-Bins are configured they do not set the torque value. Smart-Bits and Smart-Bins only verified that the correct part has been selected. The controller will not be enabled if the XY position, Smart-bit or Smart-Bin selection is incorrect.

The Smart-Control box will enable the tool only when the XY location bit or bin selection match. As the tool location device is moved throughout XY, the display will flash "TQ", informing the operator that a matching point has not been found and that torque mode is operating. Once an XY position has been matched to a taught point, the display will change to show the settings for that point. If the bit select or bin pick is not correct for that point, that information will be displayed.

The flow chart below displays the control logic when in Torque Control mode. If the device is not present, the step is omitted. The displayed values on the Smart-Control box are also shown.



The alternative parameter for setting torque, when no tool locating device is present, is to set the torque based on the a Smart-bin pick input. In this case, the last bin pick will be latched and held, setting a torque value. The

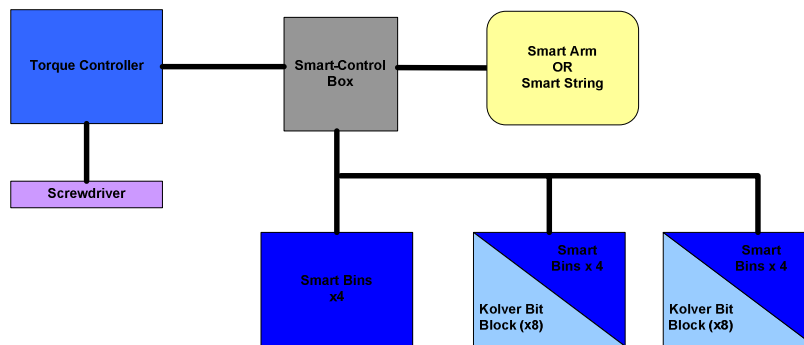
operator will not be forced to pick a screw for each torque. Bit selection is only verified and does not set the torque in this case. The controller will not be enabled if the bin pick selection is incorrect.

The table below summarises the display values when in torque mode.

Step	Display	Description
Bin Check	PPBNXX	PP - Point Number, BN - Bin, XX - Bin Number
Bit Select	PPBTXX	PP - Point Number, BT - Bit, XX - Bit Number
Torque Enabled	PPTQXX	PP - Point Number, TQ - torque, XX - torque program

In each case, if the display parameter is flashing, the parameter is incorrect and must be corrected before moving forward. For example, if the bin pick was incorrect the XX value would flash the correct bin pick value. The screwdriver is disabled until the torque enabled step, at which point the torque program is displayed.

3.1.1 Smart-Control – Torque Mode – Smart Arm / String Configuration

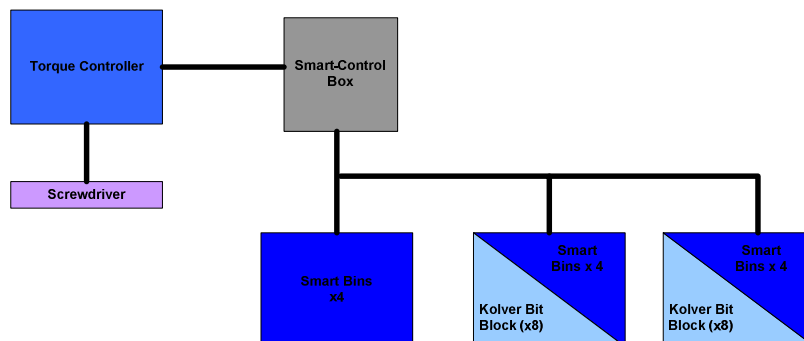


Torque Control: Tool Location (Smart-Arm or Smart-String)

Bit Selection: Verify Only

Bin Pick: Verify Only

3.1.2 Smart-Control – Torque Mode – Smart-Bin Only Configuration



Torque Control: Bin Pick
 Bit Selection: Verify Only

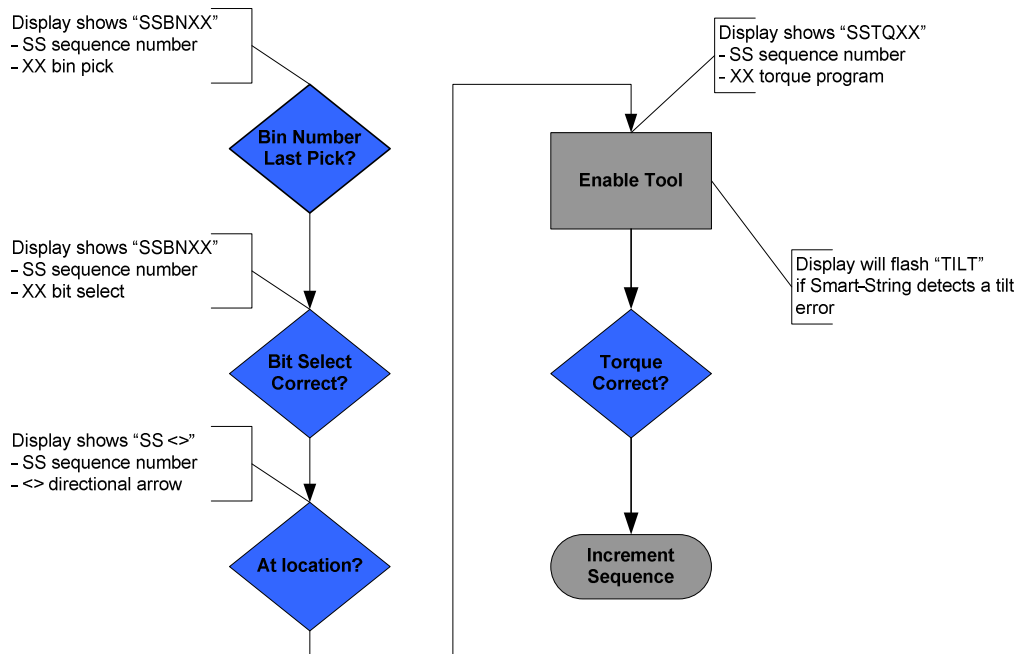
3.2 Optional: Sequence Control Mode - Overview

Sequence Control mode is an advanced control mode and is used to verify and control assembly steps. In this mode, up to 40 points and 5 recipes can be taught on the controller. Each point is a unique operation that may or may not include a torque, bin pick, bit select and unique XY location. Each recipe may contain up to 40 points.

The Smart-Control box must be configured before teaching points, see 4.3 Smart-Control Configure Function. Once this is complete, sequence points may be taught. For each point, the XY location, bin pick, torque program and bit select must be taught using the controller Teach Function, see 4.6 Teach Function.

The taught point will be verified with feedback from the configured input devices during operation. The decision tree for the Smart-Controller box is shown below. In the case of the bin pick decision, the programmed bin for that point must be the **last** bin picked, and not necessarily picked during that sequence point. This will allow operators to pick multiple screws from the same bin for multiple torquing operations. As shown below, once the bin, position, bit select are correct, the tool will be enabled. At that point, a correct torquing signal from the torque controller will increment the sequence.

The decisions shown below will be omitted if the Smart-Control configuration does not include that device. For example, if the Smart-Arm were not configured, the decision would check only the bin and bit select before enabling the tool. It may also be noted that if the Smart-Control were configured without torque control, the Smart-Control box could be used as a standalone bin sequencing device.



During Sequence Control operation, the Smart-Control box will display the current step in the sequence along with the needed input to increment the sequence. The display messages for each of the decisions are shown in the table below.

Step	Display	Description
Bin Check	SSBNXX	SS - Sequence Number, BN - Bin, XX - Bin Number
Position Check	SS <>	SS - Sequence Number, <> - Arrow for direction of torque
Bit Select	SBTXX	SS - Sequence Number, BT - Bit, XX - Bit Number
Torque Enabled	SSTQXX	SS - Sequence Number, TQ - torque, XX - torque program

In each case, if the display parameter is flashing, the parameter is incorrect and must be corrected before moving forward. For example, if the bin pick was incorrect the XX value would flash the correct bin pick value. The screwdriver is disabled until the torque enabled step, at which point the torque program is displayed.

4 Smart-Control Basic Functions

After each function is used, the default action is to return to Run mode. Run mode is denoted by a flashing TQ in Torque Control mode or by the sequence number display in Sequence Control mode.

4.1 Homing

When the Smart-Control box is 1st powered up it will flash the word HOMING. Move the arm all the way to the Left and then all the way to the right. The Smart-Control will now flash the word HOME Z. Move the tool on the end of the arm down to the work piece. The Smart-Arm is now ready to operate.

4.2 Login Function

Login allows access maintenance and recipe teaching options.

1. Turn the knob on the control box until "MAINT" flashes on the display
2. Press and release the knob to select Maintenance function
3. Turn the knob on the encoder board box until "LOGIN" flashes on the display, press button
4. Display will show "P 0###", turn the knob to select the first digit of the login password, the press button
5. Continue to enter all digits
6. If the login was successful the encoder will display "OK"; if login was not successful the display will show "ERR".
7. **Default password** pre-programmed at factory is "7439".
8. After successful login, the password can be changed by using change password option in maintenance function
9. Contact KolverUSA if login information is unknown
10. To Log-out select "LOGOUT" option from maintenance menu

4.3 Smart-Control Configure Function

This function is enabled only after a maintenance person has logged in. The Smart-Control box must be configured to properly interface with the peripheral devices.

1. To configure the Smart-Control box, turn the knob on the control unit until “MAINT” flashes on the display.
2. Press and release the knob to select the Maintenance function
3. Scroll through the Maintenance screen until “OUTTYP” is flashing, select the appropriate tool from the list.
4. Rotate the knob to re-enter the Maintenance mode.
5. If the Sequencing mode option was purchased you can turn this function on or off. Rotate the knob until “CH MOD” is flashing, press the knob to select.
6. Turn knob to select on or off.
7. Rotate the knob to re-enter Maintenance mode.
8. Rotate the knob until “bINCNT” is flashing on the display, this is for defining the number of Smart bins.
9. Rotate the knob and depress to select the number of bins present.
10. Rotate the knob to re-enter the Maintenance mode
11. Rotate the knob until “bITCNT” is flashing on the display, this will define the number of Smart bits.
12. Rotate the knob and depress to select the number of bits being used. Note that this is not the number of bit blocks present, but the number of bits.
13. If you are using Smart bits, Rotate the knob to re-enter the Maintenance mode.
14. Rotate the knob until “bItTYP” is flashing. Push the knob to select and set the type of bit block being used.
15. The configuration of the control box is complete.

4.4 Select Recipe Function

This function is enabled only after a maintenance person has logged in. Five recipes can be stored in the control unit. (Optional Memory Upgrade can be purchased to increase the number of recipes to 138 maximum.)

1. To select the desired recipe, turn the knob on the control unit until “SELREC” flashes on the display
2. Press and release the knob to select recipe function
3. The display will flash “REC#” where # is the number of the current recipe
4. Turn the knob to select the recipe (1 to 5)
5. Press and release the knob to save the selection
6. Any consequent operation will be performed with the selected recipe

4.5 Delete All Function

This function is enabled only after a maintenance person has logged in.

1. To delete all points within the current recipe, turn the knob on the control unit until “DEL ALL” flashes on the display
2. Press and release the knob to select delete all function
3. The display will flash “DEL# N?” where # is the number of current recipe
4. Turn the knob to select “Y” (Yes) as the last character on the display
5. Press and release the knob to confirm to delete all points in the current recipe
6. To cancel the operation without deleting points, turn the knob until the last character displays “n” and press the knob.

4.6 Teach Function

Teach function is used to teach, edit or delete recipe points. Follow the steps below to teach a new point or to edit a previously taught point. This function is enabled only after a maintenance person has logged in. Steps may be omitted if the configuration of the device does not include the appropriate devices. If the sequence below does not match expected, check configuration settings.

4.6.1 Torque Control Mode

1. From Run mode, turn the knob on the control unit until “TEACH” flashes on the display.
2. Press and release the knob to select the teach function.
3. Set the Smart-Arm / Smart-String to the desired position.
4. The display will display “PNT ##”, where “##” is the point number.
5. Turn the knob to select the point number (0 - 39).
6. Press and release the knob to save the point number.
7. The display will show “BIT XX”, where “XX” is the bit block selection for this point. If you select “ANY”, the bit selection is not verified.
8. Press and release the knob to save the bit selection.
9. The display will show “BIN XX”, where “XX” is the bin pick required for this operation.
10. Turn the knob to select the desired bin number. If you select “ANY”, the bin pick is not verified at this point.
11. The display will show “TQ XX”, where “XX” is the torque program selected for this operation.
12. Turn the knob to select the torque setting program.
13. Press and release the knob to save the torque program selection.
14. The control unit will now save the Smart-Arm position for that point.
15. To add the next point in the recipe follow steps 2 –13. Continue this process until all the points in the recipe have been taught.

To delete any previously taught point follow the teaching procedures above but select “DELETE” for the bit block selection number. This will delete all of the details of the selected point.

4.6.2 Optional Sequence Control Mode

1. From Run mode, turn the knob on the control unit until “TEACH” flashes on the display.
2. Press and release the knob to select the teach function.
3. Set the Smart-Arm / Smart-String to the desired position.
4. The display will show “SEQ ##”, where “##” is the sequence number.
5. Turn the knob to select the sequence number (0 - 39).
6. Press and release the knob to save the sequence number.
7. The display will show “BIT XX”, where “XX” is the bit block selection for this sequence number. If you select “ANY”, the bit selection is not verified.
8. Press and release the knob to save the bit selection.
9. The display will show “BIN XX”, where “XX” is the bin pick for this sequence number. If you select “ANY”, the bin pick is not verified.
10. Press and release the knob to save the bin pick selection.
11. The display will show “TQ XX”, where “XX” is the torque program to be selected for this operation.
12. Turn the knob to select the torque setting program.
13. Press and release the knob to save the torque setting number.
14. The control unit will now save the Smart-Arm or Smart-String position for that sequence number.
15. To add the next point in the recipe follow steps 2 –13. Continue this process until all the points in the recipe have been taught.

To delete any previously taught sequence number follow the teaching procedures above but select “DELETE” for the bit block selection number. This will delete all of the details of the selected sequence.

4.6.3 Optional PLC Mode

The Smart Control box has the optional capability to communicate directly with a customer’s PLC. In this mode of operation the Smart Control box only controls the X and Y coordinates, all other features are managed by the PLC as described in the details below. This mode of operation is not configurable by the end user, this is a feature that is configured at the factory.

When this mode is enabled, during power up of the Smart control box, the user will see “PA PLC” displayed on the display. When this mode is enable, there are three functional differences than the standard Smart Control box. First, the Smart Control box no longer communicates to the driver controller to select the required torque program for the joint X/Y coordinates. The actual torque program will be selected by the external PLC. The second difference is that the PLC will also select the correct Smart Box recipe via digital IO. This recipe selection is via six inputs through the H7 connector on the Smart control box. With the use of six inputs in a binary configuration along with the memory upgrade, up to 128 recipes can be selected. It is required that the customer purchase the H7 cable PN#XXXXXX for this recipe selection function. Please see the details below.

H7 Connections: (15 Pin D-sub Male)

Pin 10: Recipe Select Bit 0

Pin 11: Recipe Select Bit 1

Pin 12: Recipe Select Bit 2

Pin 13: Recipe Select Bit 3

Pin 5: Recipe Select Bit 4

Pin 6: Recipe Select Bit 5

The third different function included with PLC mode is a “Rework” mode. As previously mentioned, the end user PLC is monitoring and controlling the process with the exception of the X/Y coordinates of the required joint. The PLC must send the input to advance to the next joint when the joint has been completed successfully. The PLC can also communicate to the Smart Control box to move back to the previous joint if a repair is required by the user. By sending sequential inputs to the Smart Control box, the user can step back as many joints as required. This rework process can only be triggered during the process of multiple joints, if the last joint of the recipe is completed then triggering this input will have no effect. It must be triggered before the last joint of the recipes is completed. There is also an input to reset the recipe to the first joint. It is required that the customer purchase the required cable that is connected to H10 on the Smart Control box, PN#XXXXXX. Please see details below:

H10 Connections: (15 Pin D-sub Male)

Pin 9: 24V input to power Smart Control Box

Pin 10: Increment Smart box count by one, good joint completed

Pin 11: Decrement Smart box count by one, go back one joint for repair

Pin 12: Reset batch count for Recipe

Pin 8: Tool in position (X,Y)

Teaching:

1. From Run mode, turn the knob on the control unit until “TEACH” flashes on the display.
2. Press and release the knob to select the teach function.
3. Set the Smart-Arm / Smart-String to the desired position.
4. The display will show “SEQ ##”, where “##” is the sequence number.
5. Turn the knob to select the sequence number (0 - 39).
6. Press and release the knob to save the sequence number.

To add the next point in the recipe follow steps 2 –6. Continue this process

4.7 Find Function

Find function can be used to preview all taught points for the current recipe and to guide the user to taught location for any taught point

1. Turn the knob on the encoder board box until “FIND” flashes on the display
2. Press and release the knob to select Find Location function
3. The display will flash “##” for the point number
4. Turn the knob to select the desired point number
5. The display will show: “F d pp”, where the “d” character is an arrow ($\leftarrow\uparrow\rightarrow\downarrow$) that indicates which way the tool needs to be moved to find the selected point. When the tool is at the taught point the arrow will change to show the “*” character, “pp” is the point number. If the selected point was not taught or was previously deleted the display will show “F pp”
6. To exit the find function, turn the knob until it displays “F EXIT”, and then press the knob

4.8 Set Tolerance Function

Set tolerance function allows the user to specify the maximum distance between the current tool position and the taught position. The default value is 10.0 mm. This function is enabled only after a maintenance person has logged in.

1. To enter the set tolerance function, turn the knob on the control unit until TOL” flashes on the display
2. Press and release the knob to select the find location function
3. Turn the knob to select the desired tolerance in millimetres
4. Press and release the knob to enter and store the selection

4.9 Maintenance Function

This function is enabled only after a maintenance person has logged in. The Maintenance function is used to access options used to troubleshoot problems and to access setup functions. Some functionality will be specific to Smart-Arm and Smart-String and is not shown here.

To enter the maintenance function:

1. Turn the knob on the encoder board box until “MAINT” flashes on the display
2. Press and release the knob to select Maintenance function
3. Turn the knob to select desired item (some items are available only after successful login):
 - a. “S#####”, where “#####” is unit serial number
 - b. “L#####” is used for internal diagnostics only
 - c. “VER###”, where “###” is firmware version
 - d. “A” is the actual raw encoder reading for H1 encoder
 - e. “B” is the actual raw encoder reading for H2 encoder

- f. "C" is the actual raw encoder reading for H3 encoder
- g. H1, H2 and H3 is a home position counter for each respective encoder. Each time the arm passes the home pulse of the encoder this value will increase by one.
- h. "X" calculated X position of the arm.
- i. "Y" Calculated Y position of the arm
- j. "IN####", where "####" is the value of the input channel in Hex. This value can be used to test the inputs on ports H7 and H8 of the Smart control box. This function comes in handy when testing the presence of a particular bit in the bit block.
- k. "OUT ##", where "##" is the number of the currently enabled torque setting or "dIS" if there are no programs enabled and the screwdriver is disabled. This represent the torque program setting sent to the screwdriver controller. See the manual for the screwdriver controller that is being used for details on these settings
- l. "SETORG" (blinking) indicates set origin function. See set origin section for description of this function
- m. "FRCOUT" (blinking) indicates force outputs function. This function is used to check the connection with the screwdriver. See force outputs section for description of this function
- n. "FRCHOM" (blinking) indicates force homing function. This function is used only during factory testing.
- o. "OUTTYP" (blinking) is used to change output type for different screwdriver controller. See the change output type section for description of this function
- p. "CH PSW" (blinking) is used to change the password on the control unit. See the change password for description of this function
- q. "CH MOD" (blinking) indicates changing the mode of operation for sequencing on or off.
- r. "bINCNT" (blinking) indicates the number of Smart bins connected to the box
- s. "bITCNT" (blinking) indicates the number of Smart bits connected to the box
- t. TOL" (blinking) indicates the setting of positional tolerance for the Smart arm controller.
- u. "RSTINP" (blinking) indicates whether the external reset input is enable or disabled. Reset input pin used when enabled is pin 10 on the H9 connector.
- v. "LNKTYP" (blinking) indicates if the controller is a stand alone single controller or slaved with another controller for additional IO.
- w. "PNTCNT" (blinking) indicates the maximum number of points available. If the memory upgrade option is purchased this value can be edited by the user.
- x. "RECCNT" (blinking) indicates the number of possible recipes. If the memory upgrade option is purchased then this value will changed based on the number of points selected.
- y. "TCH bC" (blinking) if barcode option purchased, this function is used to teach a barcode to a specific recipe.
- z. "dEL bC" (blinking) if barcode option purchased, this function is used to delete a barcode association to a recipe.
- aa. "OUTFLT" (blinking) this function is used to set a filter to slow down the response time for enabling the tool when within the tolerance window. Typically used for Smart String only.

bb. LINK1, LINK2, LINK3, CALLEN (blinking) as detailed in Section 2.4, these are the variables used in the “SETORG” process.

cc. “EXIT” is to exit the maintenance function. Press button to exit the maintenance function

4.10 Change Password Function

Change password function is used to change the maintenance login password on the control unit. This function is enabled only after a maintenance person has logged in.

1. Turn the knob on the control unit until “MAINT” flashes on the display
2. Press and release the knob to select Maintenance function
3. Turn the knob on the control unit until “CH PSW” flashes on the display, press button
4. Display will show “P 0###”, turn the knob to select the first digit of the new login password, the press button
5. Continue to enter all digits
6. Enter the new password second time for verification
7. If the new password process was successful the encoder will display “OK”; if changing the password was not successful the display will show “ERR”

4.11 Change Output Type Function

Change output type function is used to match output type to the used screwdriver controller. This function is enabled only after a maintenance person has logged in.

Important Notice: All recipes will be deleted when the output function is changed.

1. Turn the knob on the control unit until “MAINT” flashes on the display
2. Press and release the knob to select Maintenance function
3. Turn the knob on the encoder board box until “OUTTYPE” flashes on the display, press button
4. Turn knob to select one of following options:
 - “MICRTC” – to be used with Microtec controller
 - “KLV dO” – to be used with Kolver controller with digital inputs
 - “ATLAS” – to be used with Atlas Copco controller
 - “ACRA” – to be used with ACRA controller
5. Press and release button to store selected option Outputs Function

4.12 Force Output Type Function

Force Outputs function is used to set an output on the Smart control box to select a specific torque program on the driver controller. This can be useful to ensure the Smart box is talking to the driver controller. This function is enabled only after a maintenance person has logged in.

1. Turn the knob on the control unit until “MAINT” flashes on the display
2. Press and release the knob to select Maintenance function

3. Turn the knob on the encoder board box until "FRCOUT" flashes on the display
4. Press and release the knob to select force outputs function
5. The display will flash "FRC ##", where "##" is program number to force
6. Turn the dial to select the desired program number then press the knob

To disable the forcing of outputs, repeat the process but select "CA" instead of program number and press the knob.