

# Accurate

TECHNOLOGY INC.

*Linear Digital Measuring Systems*



*ProStop (version 3) shown here, configured for left side of saw*

## ProStop – version 3

(With Readout firmware version 3)

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## WARRANTY

Accurate Technology, Inc. warrants the ProScale Systems against defective parts and workmanship for 3 years commencing from the date of original purchase. Upon notification of a defect, Accurate Technology, Inc., shall have the option to repair or replace any defective part. Such services shall be the customer's sole and exclusive remedy. Expenses incidental to repair, maintenance, or replacement under warranty, including those for labor and material, shall be borne by Accurate Technology, Inc. (Including freight or transportation charges during the first 30 days).

Except as expressly provided in this warranty, Accurate Technology, Inc. does not make any warranties with respect to the product, either expressed or implied, including implied warranties of merchantability or fitness for a particular purpose, except as expressly provided in this agreement.

Accurate Technology, Inc. shall not be liable for any special, incidental, or consequential damages or for loss, damage or expense directly or indirectly arising from the customer's use of or inability to use the equipment either separately or in combination with other equipment, or for personal injury or loss or destruction of other property, or from any other cause.

To request repair work, (either warranty qualified parts or not) contact Accurate Technology, Inc. directly by phone or e-mail. A Returned Merchandise Authorization (RMA) number is required before returning a product for repair.

## **SAFETY WARNING**

**Before installing ProStop on any machinery:  
Turn off machine and LOCK-OUT POWER.**

READOUT SERIAL #

DATE OF MANUFACTURE

**FACTORY CONFIGURED PARAMETERS WHICH ARE SPECIFIC TO THIS PRODUCT:**

Programming control	Value
PARAMETER 2 (Reading direction)	1 (left-infeed configuration)
PARAMETER 11 (Available display units)	0 (all units)
PARAMETER 13 (Linear Correction Value)	
PARAMETER 14 (ProScale Technology)	0 (Inductive)
PARAMETER 24 (Monitor Mode)	1 (enabled)

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## Introduction

ProStop is a general-purpose Digital Stop & Fence System. It is ideal for use on Miter saws, Chop Saws, Radial Arm Saws, band saws, drill presses, or any other application where a moveable stop along a fixed back fence is desired. It has been designed using high quality extruded and machined parts to provide the best accuracy and repeatability.

*Note: ProStop should NOT be used as a length checking system for Quality Control; its design is not well suited for that purpose.*

This manual includes installation and operation information for ProStop systems built with a ProScale General Purpose Readout with operating firmware version of 3.300 and higher.

(The firmware version is displayed when the readout is powered on using the ON/OFF key.)



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# Specifications

Positioning Range <sup>1</sup> :	Up to 234 inches in a single section
Accuracy <sup>2</sup> :	+/- 0.010 inches (0.25 mm)
Resolution	<u>User Selectable:</u> Inches: 1, 2, 3, or 4 decimal places Millimeters: 1 or 2 decimal places Centimeters: 1, 2, or 3 decimal places Fractions: 1/16 <sup>ths</sup> , 1/32 <sup>nds</sup> , or 1/64 <sup>ths</sup>
Repeatability:	.001in, or .01mm, or .001cm
Operating Temp:	32 to 110°F (0 to 42 C)
Max. Slew Rate:	80 inches/sec. (2000mm/sec)
Power:	1 CR123, 3V Lithium battery

ProScale systems are intended for INDOOR use only.

<sup>1</sup> Positioning range is approximately 6 inches *shorter* than the PHYSICAL length of the aluminum fence extrusion.

<sup>2</sup> Maximum observed error over the entire measuring range as long as the Linear Correction Value is not changed (see page 3)

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## ProStop Parts Identification

### Electronic Scale

ProStop systems use Inductive Series 2 Incremental electronic scales. The electronic scale includes a 2.00-inch x 0.50-inch aluminum extrusion with repeating sections of black circuit board material, as shown below.



### Encoder/Sensor

Encoders for ProStop have black housings and 18 inch cable lengths.



### Digital Readout

ProStop can operate with any of several different Digital Readouts, but is supplied with a General-Purpose readout unless otherwise specified.



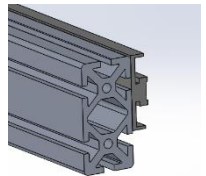
### Sliding Stop Assembly

A dual lock flip stop assembly (shown here with **optional** reversible 45/90 degree plate). This assembly includes the readout and the encoder.



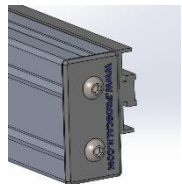
### Fence

The 1.5" x 3.0" extruded aluminum fence provides back support for the material to be cut, and is a guideway for the Sliding Stop Assembly to read the electronic scale. (Shown here with electronic scale attached.)

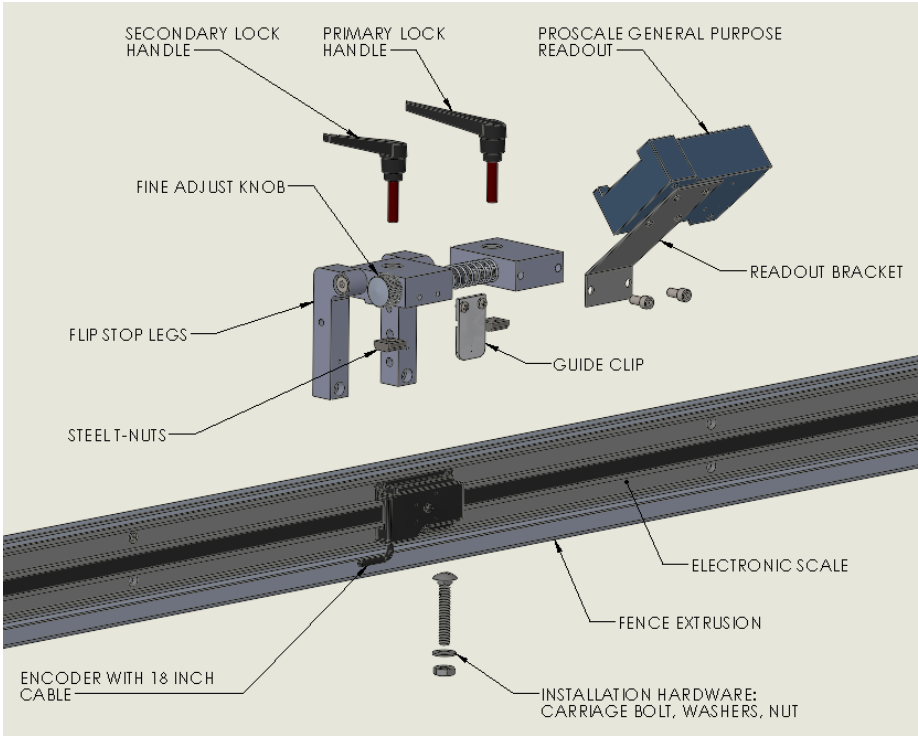


### Cap

A plastic cap is provided for covering the outboard end of the fence extrusion. Use of this cap is optional.



# Exploded View of Parts



Note: Your fence extrusion may be slightly different.  
Note: The plastic end cap is not shown above.



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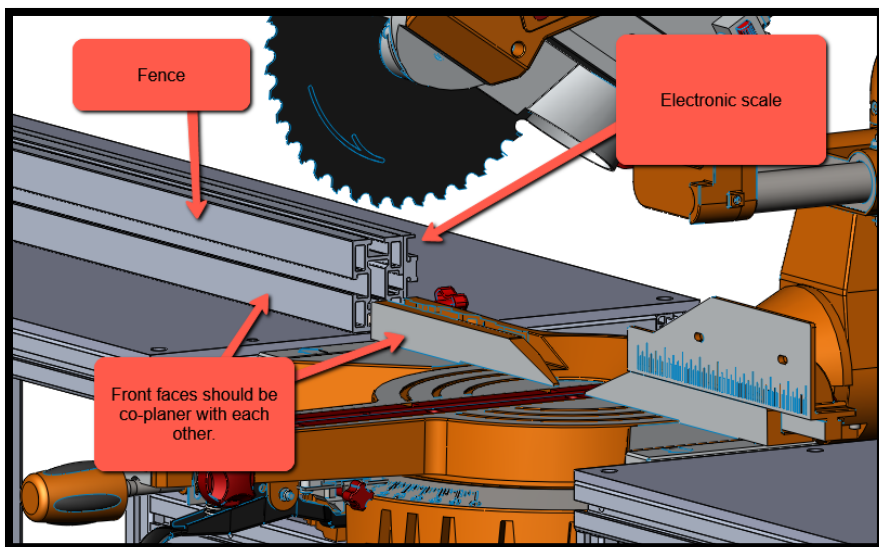
# **ProSTOP INSTALLATION**

## **Mount the Fence & Electronic Scale**

(See [www.proscale.com/prostop](http://www.proscale.com/prostop) for a RELATED installation video.  
Instructions below prevail for this version system.)

These steps detail installation onto a table, on the left side of a chop saw. The steps may change based on your machine type, workbench setup, or working space. If you have questions, please consult our factory for assistance.

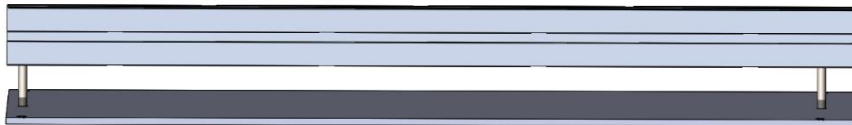
1. Place the fence profile next to the saw. The electronic scale will be facing AWAY from the operator, and flush with the TOP PLANE of the fence, as shown here:



2. Align the fence so it is co-planer with any existing fences on the saw. (If there is not an existing fence, install the fence so it is perpendicular to the saw blade.
3. Mark a line on the table/bench, along the front edge of the Fence.
4. Remove the Fence assembly and mark a second line 3/4 inch (19mm) behind the first line (this is the CENTERLINE of the ProStop system's fence).

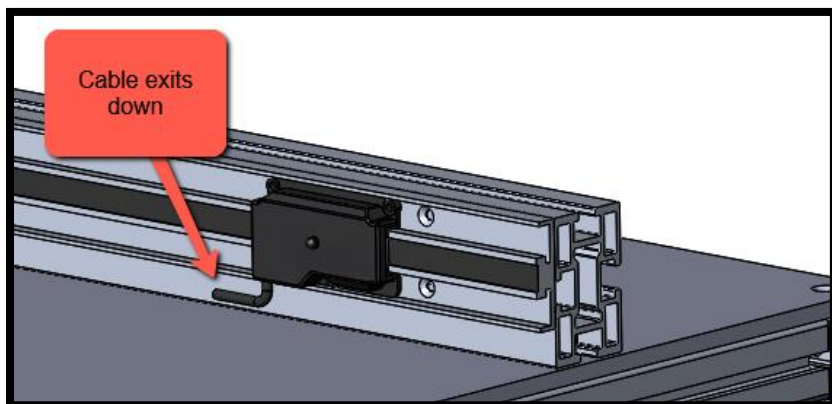
- 
5. Drill mounting holes (at least 2) into the tabletop along the centerline of the Fence. The holes should be 3/8" diameter (9.5mm) or slightly larger.
  6. Insert the supplied 5/16-18 carriage bolts through the holes in the table. Install a washer and a hex nut onto each bolt, 1 or 2 threads deep at this time.  
Note: The supplied bolts will mount ProStop to any bench/table up to 2.50" (63mm) thickness.
  7. Slide the Fence over the carriage bolts, capturing the top of each bolt in the bottom T-slot of the fence profile. After the Fence is in place, and alignment is checked with the saw, tighten all nuts using a 9/16" (14mm) socket/wrench, or use a crescent wrench.

**Alternative installation:** If the fence cannot be slipped over the carriage bolt heads, you may elect to slide the carriage bolts into the bottom of the fence first. Then drop the entire assembly into place, guiding the carriage bolts into the benchtop holes:

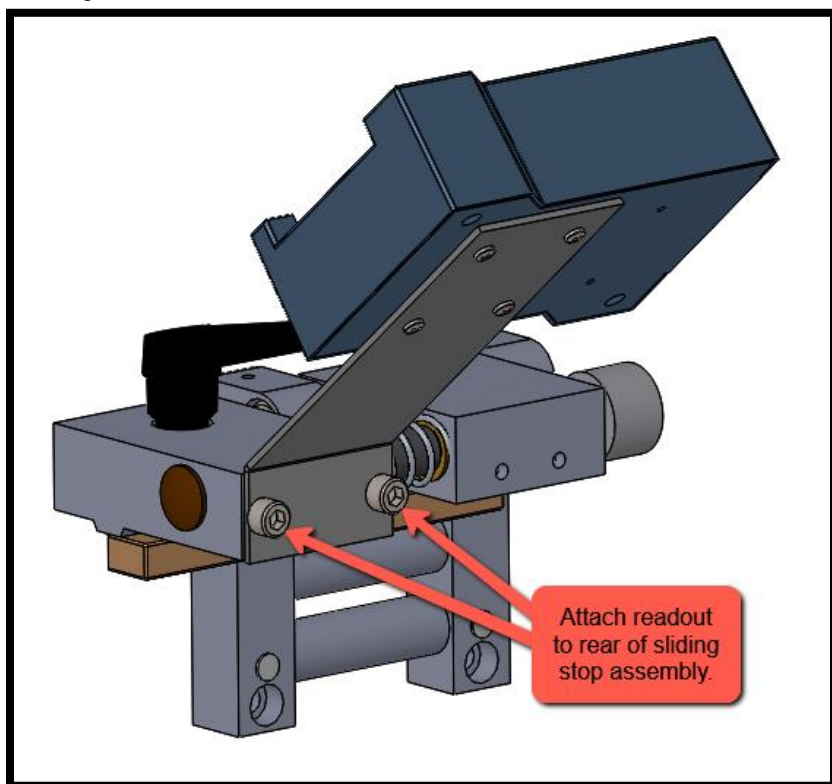


## Install the Sliding Stop Assembly

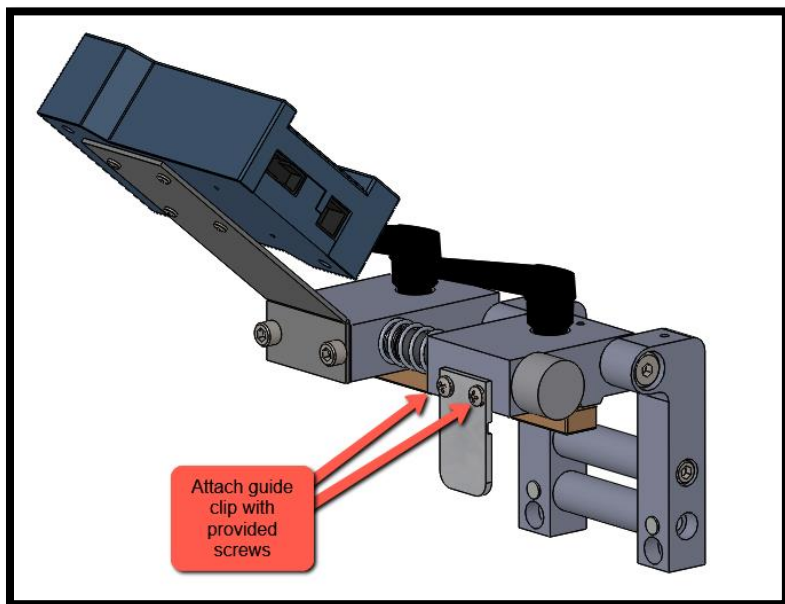
1. Slide the encoder/sensor onto the electronic scale.



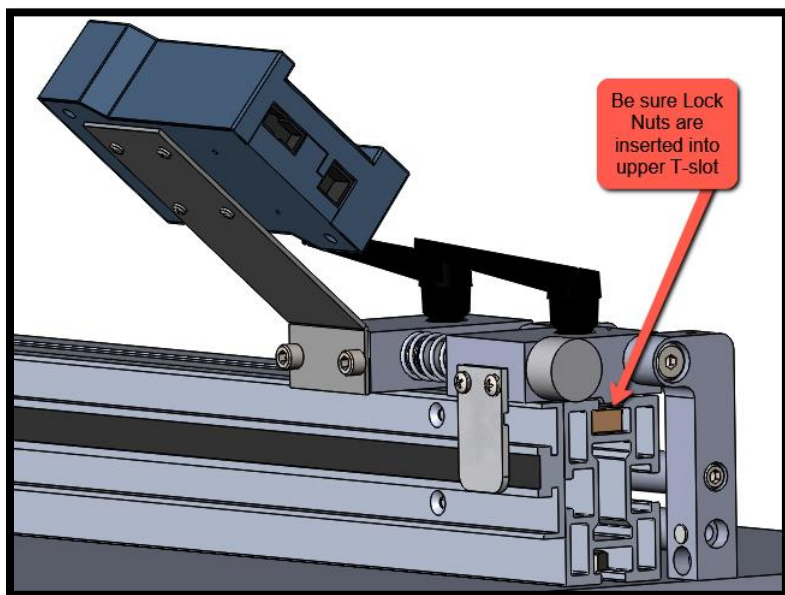
2. Attach the readout bracket to the back of the sliding stop assembly. Tighten bolts.



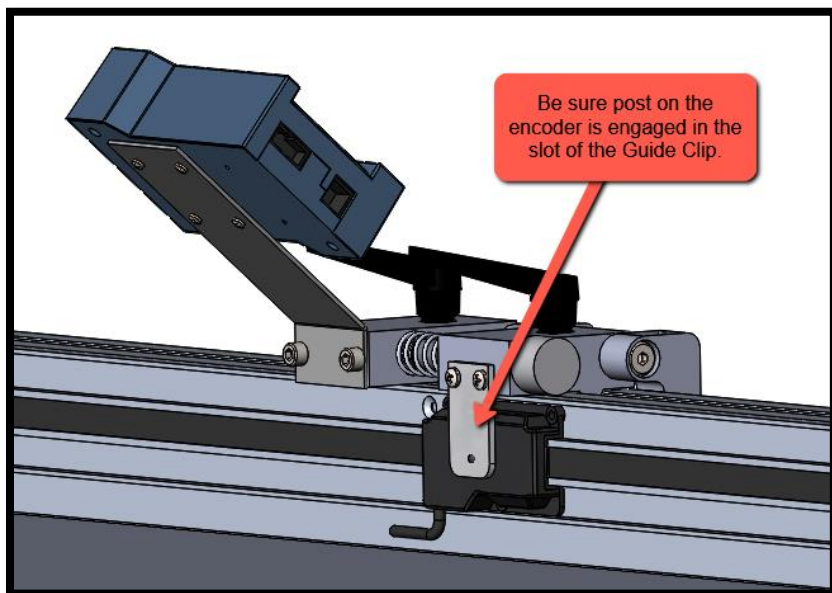
3. Attach the Guide Clip to the back of the sliding stop assembly. Tighten screws. **NOTE: The slot in the guide clip faces INWARDS.**



4. Loosen the Stop Assembly lock handle(s) and slide the assembly onto the fence. Be sure to guide the 2 lock nuts into the upper T-slot in the fence.

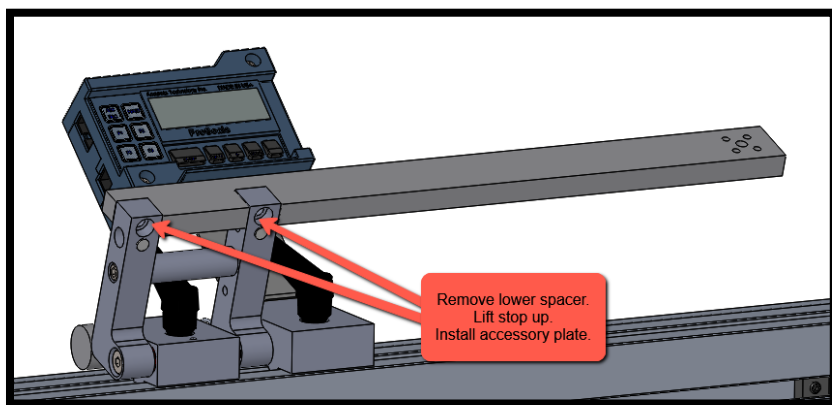


- Slide the encoder along the electronic scale and position it under the Guide Clip on the Stop Assembly. The post on the top of the Encoder should snap into the slot on the inside of the Guide Clip.



- Plug the Encoder into the Digital Readout. Depending on the installation, you may find the cable length of the encoder is too long. A zip tie and sticky-back base are supplied if you wish to coil up any excess cable length. We recommend the sticky back is applied to the readout bracket.
- Press the DATUM key one time. The displayed value will zero out.
- Move the stop assembly from right to left. Does the measurement increase as you expect? If yes, proceed to next step. If no, either reverse the encoder (so cable exits up), \*OR\* change Pr2 in the programming menu of the Digital Readout (see page 23).
- OPTIONAL: Examine the sliding stop assembly.  
In some cases, it may be preferable to have the flip stop very close to the blade. (This allows precise cutting of short parts.)  
In other cases, you may want the flip stop to be away from the blade. (This allows cutting of longer parts.)  
The sliding stop assembly can be reversed if desired. See video at [www.proscale.com/prostop](http://www.proscale.com/prostop) for directions to reverse the stop assembly.

10. OPTIONAL: Install accessory plates. (This can be done later if desired.)
  - a. Remove the round spacer from the bottom of the flip stop assembly using a 3/16" Allen wrench.
  - b. Slide the accessory plate into position at the bottom of the flip stop assembly, as shown below. (*This image shows a Reach-In plate.*)
  - c. Lift the flip stop up, insert and tighten the supplied installation bolts.



TIP: If you will use multiple add-on plates with your ProStop, you can program OFFSETS in the digital readout so re-calibration is not necessary when the plates are changed (up to 4 offset values can be stored in memory). Offsets are controlled by programming parameters Pr30 to Pr34, see page 23.

11. A plastic end cap is provided for the outboard end of the fence. (Use of this is optional.) Use the supplied M8 x 14 Button head bolts to install the cap into the outboard end of the fence profile.

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## Initial Calibration

1. Check to be sure installation of all parts is complete, all fasteners are secure, and the Encoder is plugged into the Digital Readout.
2. Move the sliding stop close to the blade. **Lock the stop in place.** (*Be sure to lock both handles!*)
3. Place a scrap piece of material against the stop and make a cut.
4. Measure the length of the part with the most precise measuring tool available (i.e. digital calipers).
5. Without moving the Sliding Stop, press the Datum key to zero the measurement.
6. Use the PLUS key (or MINUS key) to set the displayed reading equal to the measurement obtained in Step 4.  
*Tip: You can make the reading change faster by holding the PLUS or MINUS key down. (The rate of change increases each 3 seconds.)*
7. When the correct reading is reached, lock the keypad. This prevents accidental loss of calibration if a key is accidentally pressed:
  - a. Press and hold the ON/OFF key.
  - b. Quickly press and release the UNITS key.
  - c. A **LOCK** symbol will appear on the screen, and the PLUS, DATUM, and MINUS keys are deactivated.

Note: Repeat steps a and b to unlock the keypad.

Recalibration should be done:

- When blade kerf changes, (i.e. after changing the saw blade).
- When the battery in the readout is replaced.
- When the accessory plate is changed. (*In some cases, using OFFSETS can be used for this instead.*)

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## Digital Stop Operation

*See page 8 for part identification.*

1. Unlock both handles.
2. Move the Sliding Stop to the approximate position that is desired.
3. Turn the *Primary Lock* handle until it is locked.
4. Rotate the *Fine Adjust knob* to position the Sliding Stop to the exact location. (*Each full turn is 0.050 inches.*)
5. Turn the *Secondary Lock handle* until it is locked.
6. Position your material against the stop face and complete the cut.

Note: The stop can be flipped-up when it's not needed.



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## Customizing the readout's operation

You may wish to set some initial parameters for your ProStop application to optimize its use. Commonly changed items include:

### **Measurement Units**

The measurement units that are displayed (inch, mm, cm) are selected with each quick press on the UNITS Key.

### **Resolution**

The resolution of the displayed units is programmed using Programming Parameter Pr4.

### **Fractions Operation**

By default, fractions are rounded DOWN, but this can be changed using parameter Pr6.

### **Auto-Off Timer**

The readout will automatically power off to save power after 15 minutes of inactivity. This timer can be changed using Programming Parameter Pr12. *Similarly, the amount of motion needed to wake-up the readout is configured using parameter Pr5.*

### **Monitor Mode**

The F3 key can be used to enable a MONITOR mode. If the Sliding Stop is moved when this is enabled, all digits on the screen will flash to alert you. Monitor mode can be disabled using Programming Parameter Pr24.

There are several dozen other customizations that can be made to the system, see page 23 for more details on these.

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## Maintenance

ProStop will operate in a dry environment with non-conductive debris such as sawdust, plastic, metal dust, and small amounts of water splash with no adverse effects. The system should be cleaned of excess debris when necessary to prevent premature damage to the electronic scale and encoder/sensor. The digital readout should be cleaned periodically with compressed air to remove any dust on the lens and keys. If the Sliding Stop becomes difficult to move, be sure the upper T-slot is clear of debris.

Each 6 months:

- All mounting fasteners should be checked for tightness.
- Apply wax or dry lubricant to the threads on the fine adjustment shaft.
- Replace the battery in the readout.

Every 1-2 years:

- Replace the Guide Clip.

Every 5 years:

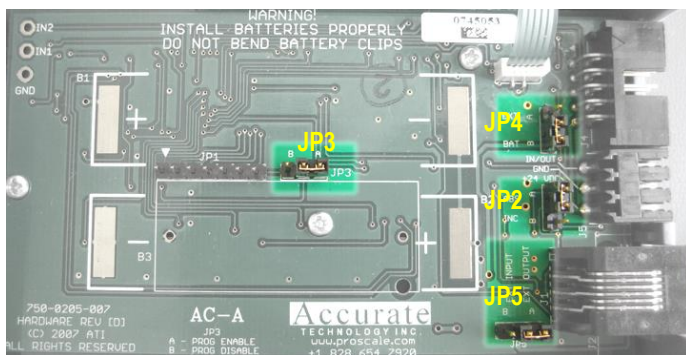
- Replace the small nylon buttons that the Sliding Stop rides on.
- Replace the 2 T-nuts under the Sliding stop.

*This timing is based on 4 hours of use each day in a reasonably clean indoor environment. Adjust schedule as necessary to suit your use.*

## Battery Replacement

When the battery in the digital readout needs to be replaced, a battery icon will appear, or you will see a “**B FAIL**” message on the screen. Remove the screws in the upper right and lower left corners of the readout. Pull the cover off. Remove the old battery. Install a new CR123 (or equivalent) battery noting the proper orientation. Replace the cover and screws.

**Tip: Be careful to avoid touching parts of the circuit board not related to the battery.**



## Primary key functions



What happens on a **QUICK PRESS** of each key?

Key	Action
ON/OFF	The readout turns on or off.
UNITS	The units change. <i>Note: Available units can be restricted with custom programming settings.</i> When in programming mode, pressing UNITS advances one parameter value with each press.
PLUS	The displayed value is increased one unit.
DATUM	The displayed value is set to the programmed datum value. <i>Note: This value is zero by default, but it can be customized to be any value.</i>
MINUS	The displayed value is decreased one unit.

What happens if a **KEY IS HELD DOWN?**

Key	Action
ON/OFF	Nothing
UNITS	Nothing
PLUS	The displayed value increases faster each 3 seconds.
DATUM	After 4 seconds, the battery voltage is displayed. After 7 seconds, the readout's temperature is displayed.
MINUS	The displayed value decreases faster each 3 seconds.

### Key Combinations:

For these actions, **press and hold the first key**, then quickly **press and release** the second key. (*This action is the same as making a capital letter on a computer; the first key acts like SHIFT.*)

Press and hold	Then quickly press and release	Action
ON/OFF	UNITS	LOCK (or unlock) the keypad.
UNITS	DATUM	Enters or exits the programming menu.*

\*Access to the programming menu requires programming jumper to be in position A. See image on page 18; this is just above the battery.

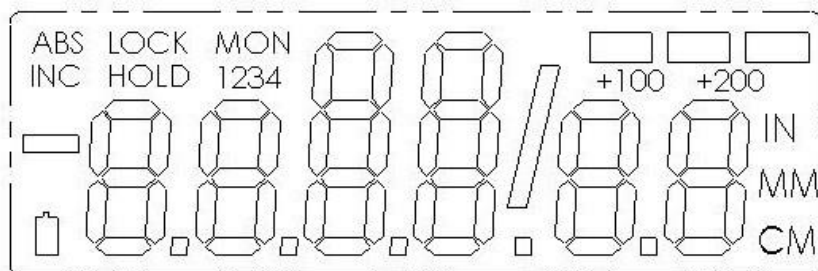
# Supplemental key functions


The digital readout supplied with ProStop has a supplemental keypad that allows additional features to be used. See below for functions of these keys:








Key	Quick press action	Press and hold action
ABS/INC	When in ABS mode, no action.  When in INC mode, the INC value is reset.	When in ABS mode, toggles readout to INC mode.  When in INC mode, toggles readout back to ABS mode.
SEND	The currently displayed value is sent to the SPC data port.	None
F1	An offset value is applied. <i>(If offset feature is enabled in the programming menu.)</i>	None
F2	None	None
F3	Turns Monitor mode on or off. <i>(If monitor feature is enabled in the programming menu.)</i>	None
F4	Turns HOLD mode on or off. <i>(If hold feature is enabled in the programming menu.)</i>	None

## What do all the Symbols mean?



Symbol	Meaning
<b>ABS</b>	The digital readout is operating in Absolute measurement mode.
<b>INC</b>	The digital readout is operating in Incremental (temporary) mode. Press and hold ABS/INC key 3 seconds to go back to ABS mode.
<b>LOCK</b>	The readout is in LOCK mode. This prevents loss of calibration if PLUS, MINUS, or DATUM keys are pressed. See page 20 for key combination to turn this off.
<b>HOLD</b>	The readout's display is frozen. When this feature is enabled, press F4 key to turn on/off.
<b>MON</b>	Monitor mode (drift alarm) is turned on. When this feature is enabled, press F3 key to turn on/off.
<b>1 2 3 4</b>	When any of these are displayed, the readout is adding a programmed offset value to the primary dimension. Offsets are useful if your ProStop is used with multiple add-on plates.
	These are used with the 16 <sup>th</sup> and 32 <sup>nd</sup> fractional inch modes. Each bar represents an extra 1/64 <sup>th</sup> long/heavy on the dimension.

## Symbols (continued):

	<p>When using fractions over 99 inches, one (or both) of these will light to show a value over 100 inches. For example: measurement is 205 5/16. The readout will show <b>5 5/16</b> and turn on the <b>+200</b> indicator.</p>
	<p>Minus sign. Turns on when a negative value is displayed.</p>
	<p>BATTERY LEVEL IS LOW. A new battery is needed soon.</p>
	<p>Vinculum – used in fractions mode to separate numerator from denominator.</p>
	<p>Units indicator. IN is for INCHES or fractions. MM for millimeters. CM for centimeters. (Press UNITS key to change.)</p>

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## Programming Mode

Many features of the readout can be customized (plus additional tools can be enabled) using the programming menu. To enter programming mode, change parameter, or change parameter values, see key press instructions, page 19.

Parameter number	What it does	Default value
Pr1	Sets the DATUM key value.	0.000
Pr2	0 = default reading direction 1 = reversed reading direction	0
Pr3	0 = +, - and DATUM keys are operative. 1 = These keys are disabled (LOCK).	0
Pr4	The resolution for decimal readings.	3
Pr5	Motion needed to wake up the readout.	0.004 inches
Pr6	Do fractions round up or down?	0 (round down)
Pr11	Controls available units modes.	0 (All units)
Pr12	Auto-off timer (in minutes)	15
Pr13	Linear multiplier	1.00000
Pr14	Encoder compatibility	1 (Absolute scale)
Pr22	ABS/INC key operation	0 (2 seconds)
Pr23	Supplemental keys enabled?	3 (All enabled)
Pr24	Monitor/hold, Go/NoGo features	0 (Disabled)
Pr25	Go/NoGo values to save	0 (None)
Pr26	Drift Monitor tolerance	.01 inches
Pr27	Limits modes used	0 (Not used)
Pr28	Lower limit value	0.000
Pr29	Upper limit value	5.000 inches
Pr30	Offset additions to use	0 (None)
Pr31	First offset value	0.5000 inches
Pr32	Second offset value	2.0000 inches
Pr33	Third offset value	3.0000 inches
Pr34	Fourth offset value	3.0000 inches
Pr35	External input operation mapping #1	0 (No function)
Pr36	External input operation mapping #2	0 (No function)
Pr37	Polarity for Output functions	0 (Normally open)
Pr38	Output Function used	0 (None)

More information about these parameters can be found in the FULL USER MANUAL at [www.proscale.com/700-1600-235](http://www.proscale.com/700-1600-235)

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## Common Errors

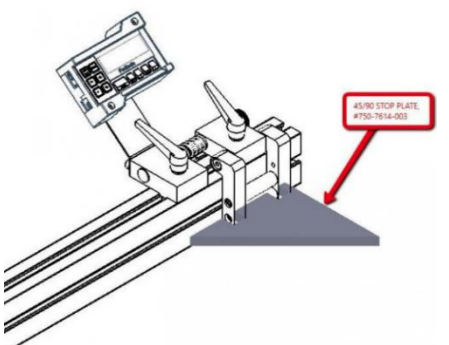
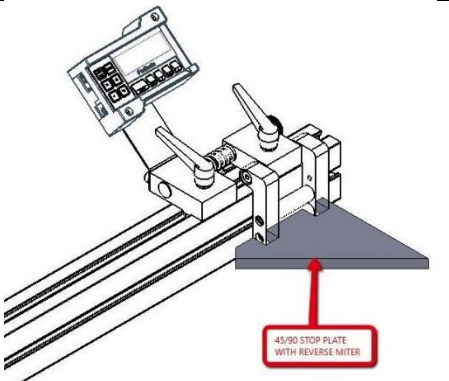
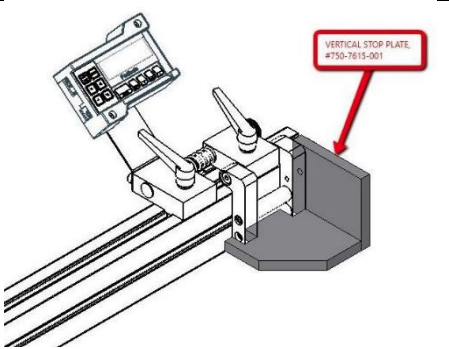
The following is a list of the most common error codes and their meaning. For additional help with any error message, consult factory.

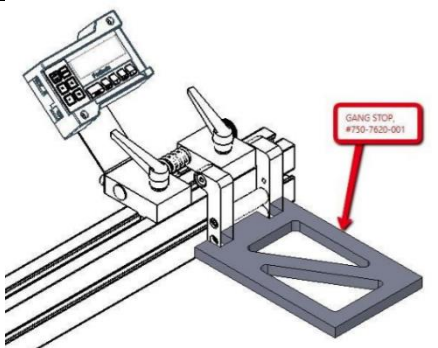
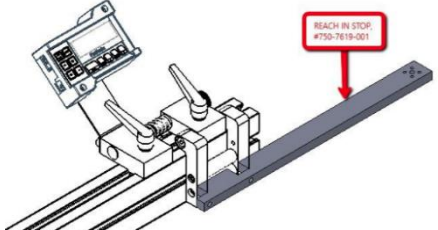
Message	What it means
<i>no Enc</i>	There is not an encoder connected to the readout, or the connected encoder has a fault.
<i>b fail</i>	The battery in the readout needs to be replaced immediately.
<i>f fail</i>	The readout cannot display fractional values larger than 399 63/64 inches.
<i>P fail</i>	The battery in the readout needs to be replaced immediately. Check programming values after new battery is installed.
<i>MON flashing</i>	Monitor mode is turned on, and the system is out of the allowable position.
<i>no Co</i>	Non-linear compensation is enabled, but there is no look-up data for the displayed measurement.
<i>uL, LL</i>	Limits mode is turned on, and a limit has been exceeded.



# Accessories

The following parts can be added to increase the ProStop system's utility:

<p><b>45-90 degree Stop Plate</b></p> <p>This plate is reversible and can be used for mitred or square cut parts.</p>	 <p>A technical line drawing showing a sliding stop assembly on a track. A red callout box with an arrow points to a triangular stop plate. The text in the box is: 45/90 STOP PLATE, #750-7614-003.</p>
<p><b>45-90 degree Stop Plate, reversed version</b></p> <p>Same as above, but easier to use if your mitred parts are measured on the OUTSIDE (long) leg.</p> <p><i>Note: This add-on should be factory ordered with your ProStop system as other <b>non-standard</b> parts need to be included.</i></p>	 <p>A technical line drawing showing a sliding stop assembly on a track. A red callout box with an arrow points to a triangular stop plate. The text in the box is: 45/90 STOP PLATE WITH REVERSE MITER.</p>
<p><b>Vertical Stop Plate Assembly</b></p> <p>This provides a larger contact area on the Sliding Stop. Contact plate is 3.5" tall x 4" wide.</p>	 <p>A technical line drawing showing a sliding stop assembly on a track. A red callout box with an arrow points to a rectangular vertical stop plate. The text in the box is: VERTICAL STOP PLATE, #750-7615-001.</p>

<p><b>Gang Stops</b></p> <p>There are 3 sizes to choose from:</p> <ul style="list-style-type: none"> <li>-8 inches extension from fence</li> <li>-10 inches extension from fence</li> <li>-12 inches extension from fence</li> </ul>	
<p><b>Reach-in plate</b></p> <p>Ideal for installations where a stop surface is needed to 'reach-in' closer the blade. This plate has 12 inches reach beyond the side of the Sliding Stop.</p>	
<p><b>Custom</b></p> <p>Need something not pictured here?</p>	<p>Let our engineering team know what you need, and we will work with you to make it happen!</p>

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## Frequently Asked Questions

### What does no Enc mean?

The Sliding Stop has been moved too fast, or  
The encoder and the readout are not communicating.  
To clear this error:

1. Be sure the encoder has not fallen off the electronic scale.
2. Unplug the encoder from the readout for five seconds.
3. Connect the encoder to the readout.

### What does b FAIL mean?

When the readout displays this message, it means the battery voltage has dropped to a level where reliable operation is no longer possible. Install a new battery to clear this message.

### What does P FAIL mean?

When the readout displays this message, it means the battery voltage has dropped to a level where reliable programming is not possible. Install a new battery to clear this message.

### The readout does not change, or changes very little, as it moves.

1. The readout is in the HOLD mode.
2. One of the linear scaling factors are set to a very small value.
3. The encoder is not properly captured by the Guide Clip. See image on page 13 for details.

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**Thank you for choosing a ProScale Product,**

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