Accurate
TECHNOLOGY INC.
Linear Digital Measuring Systems

Digi Compact LCD Readout

Operation

Firmware version b 1.xxx and greater

WARRANTY

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Accurate Technology, Inc.
+1 828.654.7920   800.233.0580   828.654.8824 (F)
www.proscale.com   info@accurate-technology.com

SAFETY WARNING

Before installing this product on any machinery:
Turn off machine and disconnect the power.

SAFETY WARNING

Table of Contents

SECTION 1   GENERAL INFORMATION

Introduction

The following pages describe the set-up and operation of the Compact digital readout when it is used with the DIGI family of products manufactured by Accurate Technology.

What This Manual Includes

This manual includes information for:

Digital Readout, LCD, Compact   Part Number: 700-1600-700
With firmware version **b 1.000** or greater.

(Press and hold the DATUM key for 7 seconds to display the readout firmware version.)

This manual does NOT apply to operation of the Compact readout with any ProScale® product.

Specifications

Resolution	.1inch .1mm or
	.01inch .01mm or
	.001inch .01mm or
	1/16, 1/32 or 1/64 inch
Repeatability:	.001inch or .01mm
Readout Range:	$\pm$ 999.999 in; $\pm$ 399 63/64 in; $\pm$ 9999.99 mm
Power:	1 CR123 Lithium Battery
Operating Temp:	40 to 110°F
Warranty:	One year from date of purchase.

Mounting

Surface Mount Configuration

The Compact readout may be mounted:

- Using Velcro or Double sided tape
- Punch out any of the four holes from the inside of the back case.
- Using any of the four holes on the back of the case. **NOTE**: Use a #4 or M3 screw *not longer than 3/8 " (9mm).*
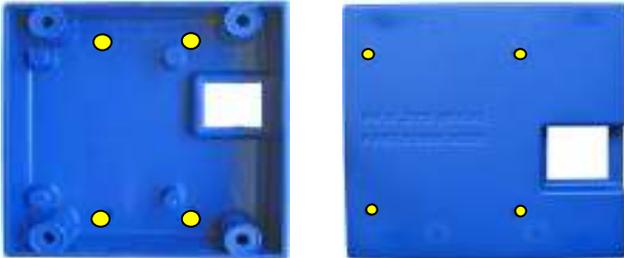

Panel Mount Configuration

A cutout should be made in the panel of at least 2.2 x 1.7 inches, (56 x 43mm). but no larger than 2.6 x 2.0 inches (66 x 50 mm).

Install the readout by screwing the four screws in the each corner of the front case directly into the panel. The rear half of the readout case is not necessary when it is used in a panel mounted configuration with a panel of sufficient thickness to hold the 4 mounting screws. If your panel is too thin to hold screws, you may 'sandwich' the panel between the front and rear halves of the readout case and install 4 screws long enough to extend through the entire assembly and into the rear half case of the readout.


2.5 Inches

2.0 Inches

Cut out size
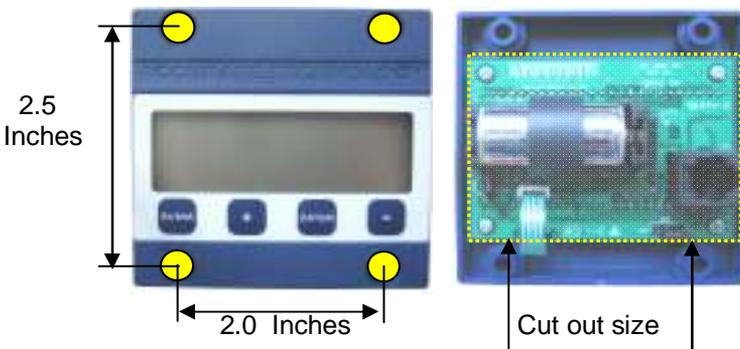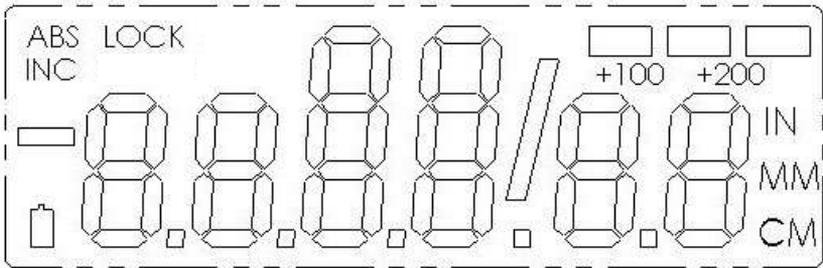
The LCD

The above figure illustrates all the segments on the LCD display.
(Not all segments are used on Compact Readouts)

Changing the Battery

A low battery indicator will appear in the lower left corner of the screen on the readout when a new battery is needed.

To replace the battery, remove the 4 screws in the corners of the readout case. Separate the two cases, remove the battery clip and the old battery. Install a new CR123 3V, or equivalent, Lithium battery, noting the proper orientation. Replace the battery clip and rear case half, and reinstall the 4 screws.

Battery Clip
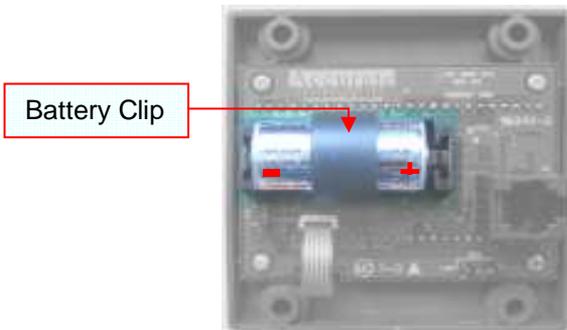
Calibration

There is no calibration available or necessary for the Compact readout. System accuracy will depend on the accuracy, and quality of the installation, of the Digi measuring system it is used with.

Circuit Board Jumpers

The Compact readout has several user configurable jumpers consisting of three pins and a 'shorting block' or 'jumper'.
The center of these three pins is common. One end pin is labeled **A** and the other end pin is labeled **B**.

JP1   **FACTORY USE ONLY**

JP2   **Programming Lock-out**
Front panel programming of the Compact readout can be enabled or disabled with a circuit board jumper. Programming is **enabled** when the shorting jumper is installed on position **A**. To disable programming, install it on **B**. When programming is disabled, you cannot access the readout programming functions via the front panel as described in the PROGRAMMING. This prevents unauthorized or accidental readout configuration changes.

**With Jumper on position A:
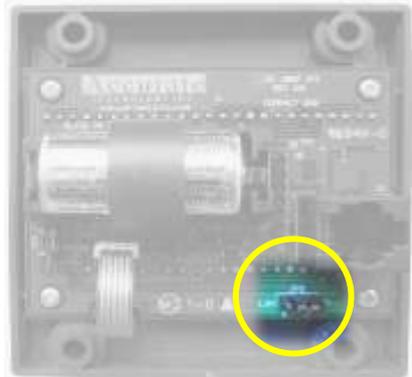Programming is <u>Enabled</u>**

**With Jumper on position B:
Programming is <u>Disabled</u>**
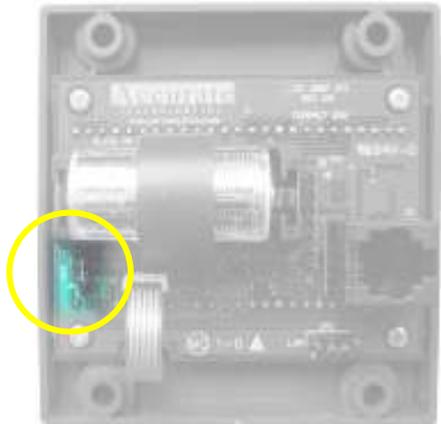
JP3   Encoder Voltage
The Compact readout is used with other Accurate Technology products and systems. JP3 is used to select the proper voltage necessary for these systems to operate correctly.

When using any Digi product or measuring system, this jumper must remain in position B.

Readout Keys

The keys on your readout, illustrated below, have multiple functions. Timing, (how long a key is depressed) is important. This manual uses the terms "*momentarily*" to describe a key press of less than 0.8 seconds and *"press and hold"* to describe a key press of 2 seconds or longer. **See Table Below.**
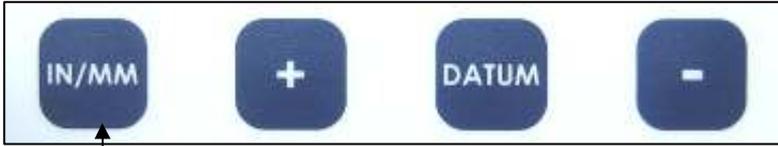

	Momentarily	Press & Hold
How long a key is pressed?	Less than 0.8 seconds	More than 2 seconds
When is key function is executed?	On key release	While holding

The execution of a key's function is performed on "key release" for momentary key presses and after the allotted time has elapsed for "press & hold" operations. **See Table Below.**

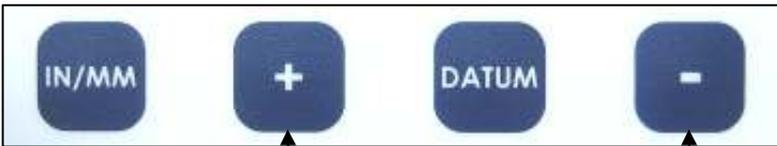|	Momentarily Press	Press & Hold
IN/MM	Cycles measurement units displayed: inches, fractions, mm	3 seconds: Toggles between ABSolute and INCremental modes
(When in programming mode)	Cycles program parameter list	Has no effect
+ - (plus & minus keys)	Increments or Decrements displayed value	Increments or Decrements displayed value faster
DATUM	Forces readout to programmed value in Pr 1	7 seconds: Displays FW version 9 seconds: Enters Programming mode 3 seconds: Exits programming mode

IN/MM KEY

Momentarily press

The compact readout can display measurement/position information in inches, fractions or millimeters. To change the display mode, momentarily press the **IN/MM** key. Each key press causes the readout to cycle to the next mode, or unit of measurement: decimal inches, fractions 16ths, fractions 32nds, fractions 64ths and millimeters.

When the readout is in 1/16 or 1/32 inch fraction mode, a series of "bars" in the upper right corner of the display, each representing 1/64th of an inch, may appear. (ie. When in 1/16 inch mode and three bars are showing, the measurement displayed is rounded *down* to closest 1/16 inch and each illuminated bar would then indicate an additional 1/64 of an inch additional measurement.)

For better measurement precision, switch to 1/32 or 1/64 mode. For the best precision select a decimal mode (in or mm) for measurements.

+ and - KEYS

**Momentarily or Hold**   **Momentarily or Hold**

Momentarily pressing the **+** or **-** key increments or decrements the currently displayed value by one unit of measurement.

Pressing and holding the **+** or **-** key will cause the displayed value to change continuously. Continue pressing the key to cause the amount of change to speed up. This allows for quick adjustments over a large range of values. These keys may be locked out to prevent accidental offset entries.

See Programming Parameter Pr3

DATUM KEY
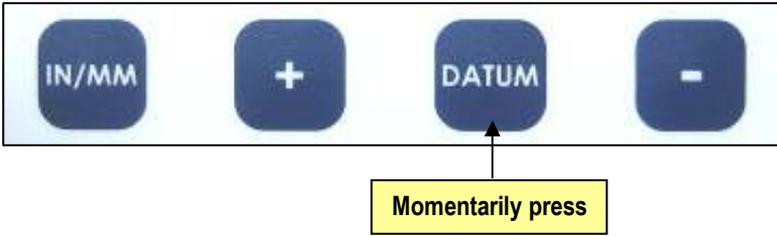
Momentarily press

The **DATUM** key is used to change the currently displayed value.
Momentarily pressing the **DATUM** key forces the readout to a user programmed value. This can be zero or any other displayable value.
See Programming Parameter Pr1

The **DATUM** key can also be locked out to prevent accidental entries.
See Programming Parameter Pr3

Press & Hold
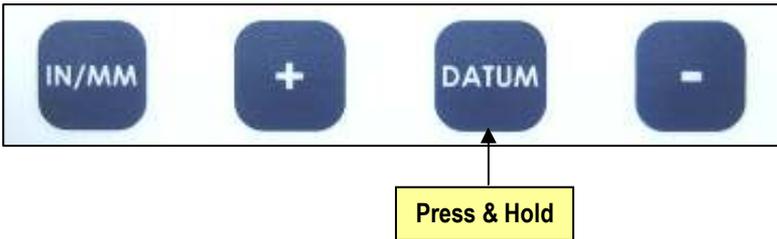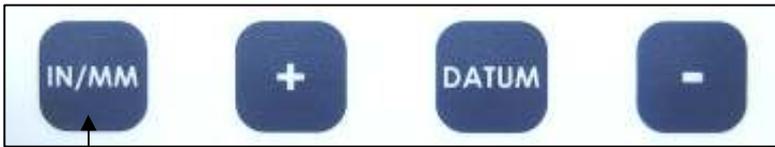
Additional functions of the **DATUM** key:

Press and hold **DATUM** for 7 seconds to display the firmware version.
Press and hold **DATUM** for 9 seconds to enter programming mode.
Press and hold **DATUM** for 3 seconds to exit programming mode.

Readout Functions

ABSOLUTE VS INCREMENTAL MEASUREMENTS

Press & Hold for 3 seconds

The Compact readout provides the ability to make relative, or incremental, measurements and still retain the measurements system's absolute position in memory. To enter the Incremental (or return to Absolute) measurement mode, press and hold the **IN/MM** key for 3 seconds. The **ABS** or **INC** indicator will illuminate on the display.

While in Incremental mode, the **+** and **–** keys are used to set offsets and the **DATUM** key is used to zero the readout.

Example of an Incremental Measurement (with no offsets):
  1) Enter the incremental mode (press and hold the **IN/MM** key 3 seconds.)
  2) Make a measurement.
  3) Momentarily depress **IN/MM** or **DATUM** key to re-zero the readout
  4) Make another measurement
  5) Repeat as necessary.

Example of an Incremental Measurement (with offsets):
  1) Enter the incremental mode (press and hold the **IN/MM** key 3 seconds.)
  2) Set the desired offset by depressing the **+** or **–** key.
  3) Make a measurement.
  4) Momentarily depress **IN/MM** key to reset the readout and apply the offset entered previously, or momentarily depress the **DATUM** key to re-zero the display before the next measurement.

NOTES:
  1. Offsets are stored when leaving the Incremental mode. Any offsets will be recalled the next time you switch from Absolute to Incremental mode.

  2. While in Incremental mode, the Units of Measurement cannot be changed. If the display is reading **mm** when you enter the INC mode you cannot change to **inches** without first returning to the ABS mode.

LOCK MODE

The user can lock-out the operation of the **+, DATUM** and **–** key functions to prevent accidental changes of the currently displayed value.
To lock these keys set
See Programming Parameter Pr3.

AUTO OFF

The compact readout turns itself off to conserve battery power. Pressing any key or movement of the encoder will wake up the readout with <u>no loss of data</u>.

RESTORE READOUT TO FACTORY SETTINGS

Remove the battery. Press and hold **IN/MM** key while reinstalling the battery.

ERROR CODES

    no Enc

If the Encoder is off the Scale, or the Encoder cable is unplugged from the readout, **no Enc** will appear on the display. To clear the error:

1.   Be sure the encoder is on the scale.
2.   Connect the encoder to the readout.
3.   Unplug the encoder from the readout for 5 seconds and then reconnect.

Programming

Several functions of this readout are user programmable.   The following describes what features and functions are available and how to change the factory defaults to customize the system to suit your application needs.

To enter programming mode:

Press and hold the **DATUM** key. After approximately 7 seconds the readout firmware version (**b 1.xxx**) will be displayed for 2-3 seconds and then the readout will enter programming mode.   **PR   1** is displayed, immediately followed by the programmed value for Pr1. Release the **DATUM** key. You are now in programming mode.

Press & Hold for 9 seconds
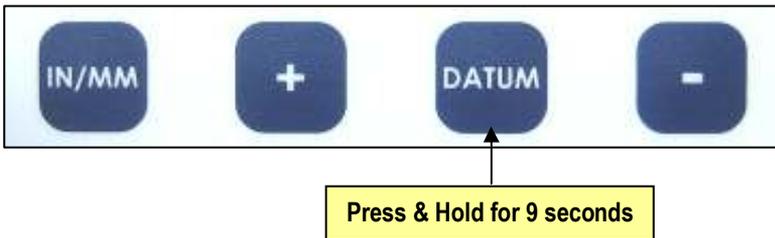
Once you are in the Programming mode, momentarily pressing the **IN/MM** key will advance through the Programming Parameter list, first displaying the Programming Parameter number, Pr x, then the currently programmed value for that parameter.

Momentarily press the **+** key to increase the parameter value setting.

Momentarily press the **-** key to decrease the parameter value setting.

Momentarily press **DATUM** to reset the parameter to the factory default value.

To exit programming mode:

Press and hold the **DATUM** key for 3 seconds.

NOTE: The readout will automatically exit programming mode after 60 seconds of no key activity.

Programming Parameters

Compact Readout Programming Parameters are listed below. Values in **[ ]** are the available range of values that may be programmed for that parameter. Factory defaults are shown in **Bold Red.**

Pr 1 – Datum Key Value   **[0** to + 999.999in**]** or   **[0** to +9999.99mm**]**
This value will be recalled and displayed when the **DATUM** key is pressed during normal operation (not during programming).
Default = 0

Pr 2 – Reading Direction   **[0** or 1**]**
This parameter controls the direction of measurement (positive vs negative) when the measuring system is moved.
Default = 0

Pr 3 – Key Lockout   **[0** or 1**]**
This parameter controls the operation of the **+**, **-** and **DATUM** keys. If enabled, (set to 1), these keys will not function and the **LOCK** symbol will appear on the readout. This prevents accidental changes when depressing these keys during normal operation.
Default = 0

Pr 4 –Resolution   **[**1, 2 or **3]**
This parameter sets the number of places to the right of the decimal point on the readout.
A value of **1** will display x.x.
A value of **2** will display x.xx
A value of **3** will display x.xxx
Default = 3
NOTE:
Decimal inch mode has a maximum of 3 places.
Millimeter mode has a maximum of 2 places (even if parameter is set to 3.)
Fractions mode is not affected by this setting.

Thank you for choosing an
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Accurate Technology, Inc.
270 Rutledge Rd. Unit E
Fletcher, NC 28732 USA
828.654.7920

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