Calibration

Once installed, ProScale can be calibrated easily and quickly. Following is an example for calibrating ProScale on a table saw fence. Other installations follow the same general procedure.

1. Check to be sure installation of all parts is complete, all fasteners are secure, and the readhead is plugged into the digital display.
2. Cut a part using the normal fence operation.
3. Do Not move fence until calibration is completed.
4. Measure the dimension of the part with the most precise measuring tool available (i.e. digital calipers).
5. Press the zero key on the ProScale digital display then press and hold the PLUS key to scroll until the measurement you just made is displayed. (The longer the PLUS key is held down, the faster the display will scroll).
6. When the proper reading is reached, lock the display if desired. This prevents accidentally re-zeroing of the display. See Section 4: *Lock Mode*

   If the direction of movement (+ and -) on the digital display is opposite the desired direction, the display programming should be changed. See Section 4: *Programming (Programming Parameter Pr0).*

Maintenance

Although the ProScale will operate in a dry environment of non-conductive debris such as sawdust, the system should be cleaned of excess debris when necessary. This will prevent premature damage to the scale or readhead. Should the scale become difficult to move, check to see if debris has built up under the readhead and remove if necessary. Find and remove any burrs which may have developed on the aluminum scale. Do not use any liquid lubricants on the scale assembly, as this may impede the readhead's ability to operate properly and will attract other contaminants to the scale.

The Digital Display should be cleaned periodically with compressed air to remove any dust on the lens and keys.

All mounting fasteners should be checked occasionally for tightness.

SECTION 4 DIGITAL DISPLAY OPERATION

This section covers the installation, programming and operation of the General Purpose LCD Digital Display (Firmware V2.0 and higher). This display is supplied on ProScale Model 150 and Model 250 systems (covered in this manual) as well as several other ProScale products whose operation is covered in their respective manuals but the digital display information is contained here.
If your ProScale product has a digital display other than a General Purpose LCD Digital Display, please refer to the separate manual for that individual display.

General Purpose LCD Digital Displays come in several configurations.
The major differences are described below:

Surface Mount Displays

Basic
2AA Batteries
SPC output

P/N 701-1600-120
NEW P/N 700-1600-220

Fully Programmable
2AA Batteries
SPC output

P/N 701-1600-100
P/N 700-1600-200

Fully Programmable
24VDC
Limit/Mon. Signal Output
LCD Backlighting
P/N 701-1605-100
P/N 700-1600-205

(New Part numbers effective April 1, 2004)

Basic Display

This display operates on 2AA batteries. It is ideal for machinery applications where more advanced programming features are not desired or required. Functions such as switching between ABSolute and INCremental readings, SENDing data, MONitoring drift, HOLDing a reading and Special Function keys are not available. This display does not have Signal output, Back-Lighting, or special function capability.
Programming Parameters Pr0 - Pr8 and Pr16 & 17 are applicable to the BASIC display.

Fully Programmable, Battery Operation

This display operates on 2AA batteries. It includes all the features of the BASIC display plus: It has an auxiliary keypad with 6 keys for: switching between ABSolute readings and INCremental measurements, MONitoring position drift, SENDing data out the SPC connector, HOLDing the reading, and F1 & F2 special function keys.
This display does not have Limit Alarm / Monitor **Output**, or Back-Lighting.
Programming Parameters from Pr0 to Pr23 except Pr14, 15 & 22 are applicable to this display.

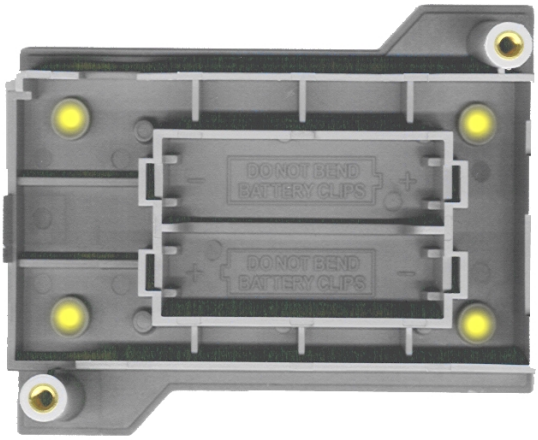
Fully Programmable, 24VDC

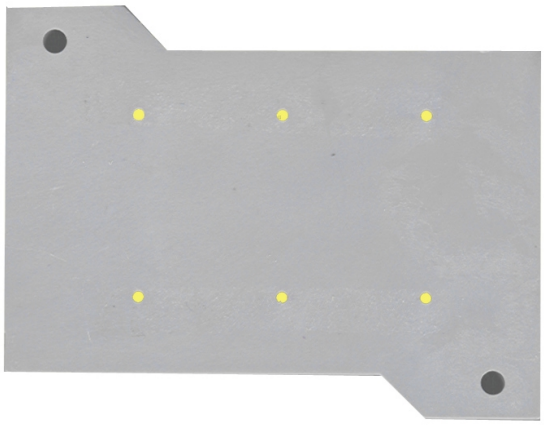
This display includes all the features of the PROGRAMMABLE Battery display. This display is intended to operate on 24VDC. It comes with a connector that allows easy connections for supply voltage and also serves as the output connection for the position Limit / Monitoring output signal.
Programming Parameters Pr0 to Pr23 are applicable to this display.

Mounting the Surface Mount Display

The SURFACE MOUNT General Purpose Digital Display may be mounted:

- Using Velcro or Double sided tape
- Drilling out any of the four holes from the inside of the case
- Using any of the six holes on the back of the case which may tapped for M2 or 4-40 screws.

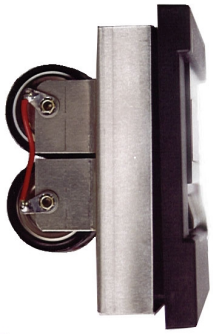




NOTE: Care must be taken when using the inside holes. If using the lower left hole as shown above, be sure to use a screw that will not rise above the extruded countersink as this may short the input connector.

Panel Mount Displays

The General Purpose LCD Display for panel and enclosure mounting applications comes in two versions. Both are designed to fit a ¼ DIN (90mm x 90mm) (3.5in x 3.5in) panel opening. One version is battery operated (2D) and the other is designed for 24VDC operation. Both versions have full programming capability.



Fully Programmable
2D Batteries
SPC output

P/N 701-1570-100
NEW P/N 700-1600-400

Fully Programmable
24VDC
Limit/Monitor Signal Output
LCD Backlighting
P/N 701-1560-100
P/N 700-1600-300

Fully Programmable, Battery Operation

This display operates on 2D batteries. It has an auxiliary keypad with 6 keys for: switching between ABSolute readings and INCremental measurements, MONitoring position drift, SENDing data out the SPC connector, HOLDing the reading and suspending key press activity, and F1 & F2 special function keys.
This display does not have Limit Alarm / Monitor Output, or Back-Lighting.
Programming Parameters Pr0 through Pr23 are applicable to this display.

Fully Programmable, 24VDC

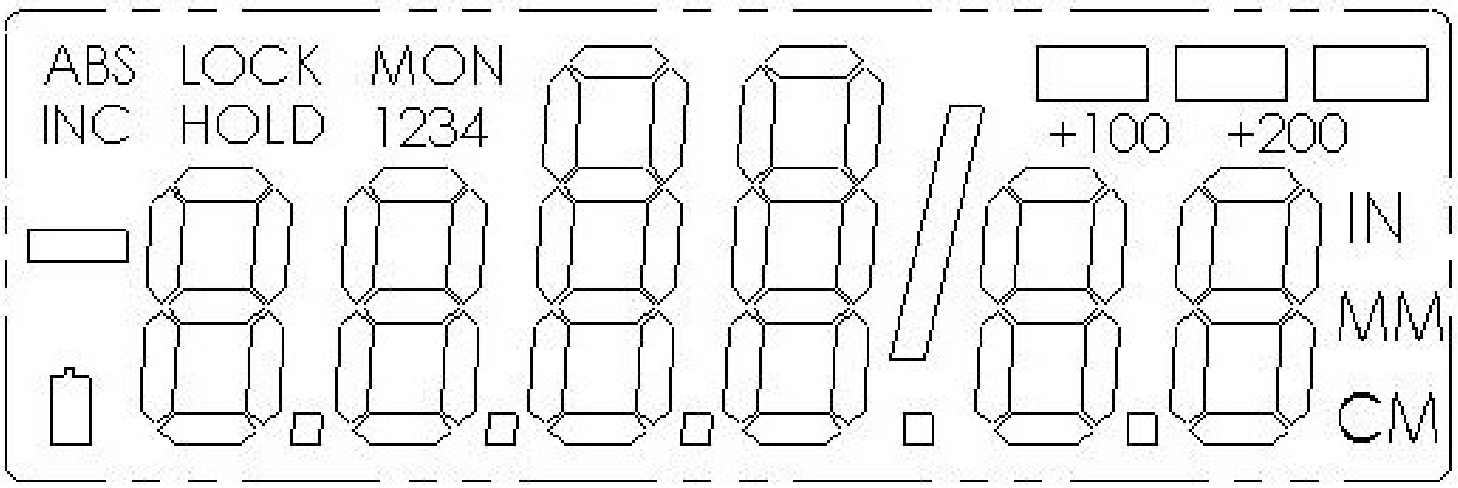
This display includes all the features of the PROGRAMMABLE Battery display. This display is intended to operate on 24VDC. It comes with a connector that allows easy connections for supply voltage and also serves as the output connection for the position Limit / Monitoring output signal.
Programming Parameters Pr0 through Pr23 are applicable to this display.

Mounting the Panel Mount Display

A cutout should be made in the panel at least 90mm x 90mm (3.6 x 3.6 inches), but no larger than 93mm x 93mm (3.7 x 3.7 inches)..
The cases of the digital display are designed to "sandwich" panel thicknesses between 3mm (0.125") and 20mm (0.750") between the front and rear display cover.
Note: If Panel is thinner than 3mm (0.125 in), shorter screws must be used for the display casing or damage to the front cover of the display will occur.

Display Operation

The LCD



The above figure illustrates all the segments available on the Digital Display.

CAUTION: Pressing and holding the ON/OFF and MODE key for 10 seconds *while the display is turned off* will perform a full segment LCD test AND re-set all programming parameters to factory defaults

Display Keys

Timing

The keys pictured above, found on all General Purpose LCD Digital Displays, have multiple functions. Timing, that is how long a key is depressed, and the combination of the keys pressed is important. This manual uses the term '"*momentarily*" to describe a key press of typically less than 1 second. Whereas *"press and hold*" is used imply a key press of typically longer than 1.5 seconds. As an example; when using a PC keyboard to type a capital letter you would "*press and hold*" the SHIFT key and "*momentarily* depress the LETTER key.

In addition the key(s) "*function*" is executed on the key RELEASE, not the key DEPRESS. This is important since some keys execute different functions based on how long they are depressed. These key operations, once tried, quickly become intuitive.