
Readheads

Absolute

Absolute (ABS) style readheads have “**BLACK END OF SCALE**” labels on the cover, and the wire exits from the *corner* of the housing. Care must be taken not to damage the brass “fingers” inside the readhead housing. ABS style readheads, used in all Model 150 and Model 250 systems, must only be used on ABS scales and with a particular orientation. Each readhead has an arrow on the label pointing in the direction of the “**BLACK END OF SCALE**”.



Each ABS style scale will have one end painted black. This relationship is very important, since the readhead will work, but produce erratic results if installed backwards. To insure proper operation, be sure the arrow on the readhead is pointing toward the **BLACK** end of the scale. The standard ABS readhead has 3m (10 ft.) of cable. For special cable lengths, contact Accurate Technology, Inc.



*Standard ABS Readhead is supplied with a 3m (10ft) cable
OLD Part # 701-1510-001, **NEW Part # 701-1500-120***

Incremental

Incremental style readheads do *not* have labels on the cover, and the wire exits from the *center* of the housing. Care must be taken not to damage the brass “fingers” inside the readhead housing. Incremental readheads work on incremental scales **ONLY**. Orientation of incremental readheads on the scale is not important. Incremental readheads are still used on some current Accurate Technology products such as: ProStop, ProKit, Measuring Kits, ProCaliper, and ProPanel.



*Standard Incremental Readhead is supplied with a 300mm (12in) cable
Old Part # 701-1002-002, **NEW Part # 701-1500-N12***

Avoid making extension cables. If a different cable length is required, contact Accurate Technology, Inc.

Readheads used on Absolute and Incremental systems should never be mixed.

Digital Displays

Accurate Technology makes several different digital displays for use with ProScale products. Each display has unique features that make it suitable for different applications. The following is a listing of the displays and their descriptions:

General Purpose Surface Mount

- Basic (no auxiliary keys) 2AA Bat. 701-1600-120
NEW Part # Effective April 2004: 700-1600-220
- Full Fuctionality, 2AA Battery 701-1600-100
NEW Part # Effective April 2004: 700-1600-200
- Full Fuctionality, 24VDC 701-1605-100
NEW Part # Effective April 2004: 700-1600-205



General Purpose 1/4 DIN Panel Mount

- Full Fuctionality, 2D Battery 701-1570-100
NEW Part # Effective April 2004: 700-1600-400
- Full Fuctionality, 24VDC 701-1560-500
NEW Part # Effective April 2004: 700-1600-300



Operation Instructions Included in this Manual

Other Digital Displays

- 1/8 DIN Panel Mount**
 24VDC LED,
 RS485 Output 700-1600-090



- 1/4 DIN Panel Mount**
 24VDC Backlit LCD
 Position Control Unit 700-1600-110



- Dual Input Panel Mount**
 24VDC 2 line Backlit LCD
 2 inputs, A+B, A-B, RS232 out 700-1600-500



Operation Covered in Separate Manual

Product Specifications

ProScale Model 150 & Model 250

Measuring Range*:

Model 150: 2 Standard Sizes:
0-250mm (10in) and 0-450mm (18in)

Model 250: 9 Standard Sizes:
0 to 300mm, 600mm, 1.3m, 2.4m, 3.0m, 3.6m, 6.0m
(0 to 12in, 24in, 52in, 96in, 120in, 144in, 240in)

Accuracy: $\pm (.025 + .064 \times L / 430)$ mm; max error ± 0.20 mm @ 1.3 to 6m
 $\pm (.001 + .0025 \times L / 17)$ in; max error $\pm .008$ in @ 4 to 20 feet
(L = length of measurement in mm or inches)

Resolution .1mm/.01cm/.01in; .01mm/.001cm/.001in; .01mm/.001cm/.0004in

Repeatability: .01mm or .001cm or .001in

Display Range: ± 9999.99 mm; ± 999.999 cm; ± 999.999 in; $\pm 399 \frac{63}{64}$ in

Operating Temp: 0 to 51°C; 32 to 120°F

Temp Coef: 25ppm/°C; 13ppm/ °F

Max. Slew Rate: 400 mm/sec. (15 inches/sec.)

Available Displays: General Purpose Surface Mount LCD
(Digital Readouts) General Purpose 1/4 DIN Panel Mount LCD
1/8 DIN Panel Mount LED
1/4 DIN Panel Mount Position Control LCD
Dual Input Panel Mount LCD

Accessories: See Section 6

Output Format: Mitutoyo SPC, RS232, RS485 (Selected displays)

Readhead: 3m (10'), six-conductor cable terminated by RJ12 connector.
(Maximum cable length 6m)

Dimensions: Available at www.proscale.com.

US Patents: 4420754, 4879508, 4878013, 4959615

Warranty: Three years from date of purchase.

All ProScale products are MADE IN USA

* MEASUREMENT lengths are approximately 100mm (4in) *shorter* than PHYSICAL lengths.



ProScale Model 150-10 shown with Surface Mount General Purpose LCD Digital Display

ProScale Model 150

A General Purpose measuring system with standard measuring ranges of 250mm (10") or 450mm (18").

Model 150 systems use ABS style scales, ABS style readheads, and any of the available digital displays. Neither the scale nor readhead are compatible with any Accurate Technology incremental technology measuring systems.

ProScale Model 150 is easy to install. By following the basics of good installation, reliable, error-free operation can be expected. ProScale M150 can be used in many different measurement applications, and with numerous types and brands of equipment. Therefore all installations will be a little different and it is the responsibility of the installer to choose the bolts, screws, or other mounting hardware that guarantee proper installation for optimum operation.

Note: *If a custom kit was ordered which contains instructions for installing ProScale on a specific product, follow those instructions rather than the general instructions here.*

Installation

1. Note the orientation of the readhead on the scale. Be sure the arrow on the readhead points towards the “**BLACK END OF SCALE**”. This orientation is critical for proper operation of ProScale. Be sure the mounting location for the readhead and scale will allow this orientation. Take care when sliding the readhead onto the scale so the brass “fingers” inside the readhead do not get damaged. (A slight “wiggling” motion when installing the readhead on the scale will simplify the process.)
2. Determine an appropriate mounting location for the system. Most applications of the Model 150 will have the readhead held stationary while the scale is passed through the readhead. The ProScale will also operate properly if the readhead is moved along the scale (see figures on next page).

3. If the readhead is to be mounted stationary, the scale should be attached to a moving part of the measuring application or machine using the *Connector Link*.

Mount the readhead using three screws or bolts. Mount one end of the connector link to the scale using an M5 (or 10-32) screw and the other end to the moving part. Check that the scale is properly aligned with the direction of motion of the moving part. Be sure both connections are secure or inaccurate/erratic readings could result. (The connector link compensates for small misalignments of the installation and acts as a *shear pin*). The connector link must be mounted in the same direction as the scale (see figure below).

Note: Failure to use the connector link could void the warranty.



Connector Link

4. If you choose to hold the scale stationary and move the readhead to measure, you should use the *Guide Clip* to move the readhead along the scale (see figure on next page). The connector link is not necessary in this configuration.

Mount the scale using a M5 (or 10-32) screw. Be sure the scale is properly aligned as the readhead is moved (the Guide Clip will compensate for slight misalignment in one direction only). Adjust scale alignment if necessary.

For accurate measurements, the guide clip must be mounted perpendicular to the direction of travel of the readhead. The guide clip should exert some pressure over the full range of travel on the readhead so the two move as a single unit.

Note: Failure to use the guide clip could void the warranty.



Guide Clip