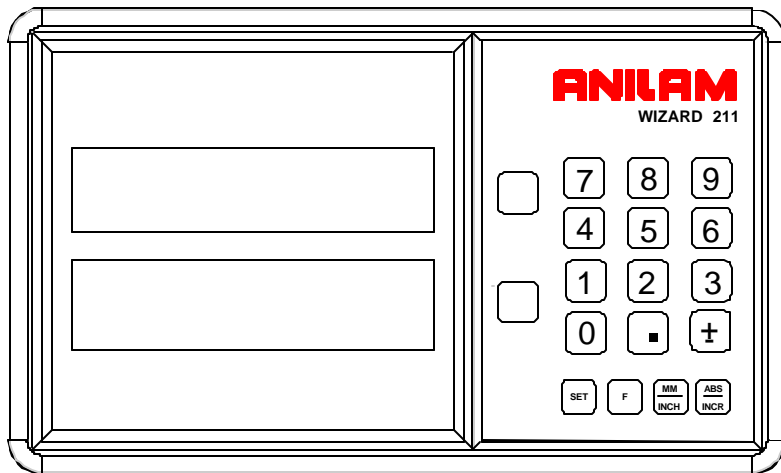


ANILAM

Wizard 211 Digital Readout Operations Manual



P/N 70000421B

Warranty

ANILAM warrants its products to be free from defects in material and workmanship for three (3) years from date of installation. At our option, we will repair or replace any defective product upon prepaid return to our factory.

This warranty applies to all products when used in a normal industrial environment. Any unauthorized tampering, misuse, or neglect will make this warranty null and void.

Under no circumstances will ANILAM, any affiliate, or related company assume any liability for loss of use or for any direct or consequential damages.

The foregoing warranties are in lieu of all other warranties expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

System Purchased From: _____

Console Part Number: _____

Console Serial Number: _____

Date of Installation: _____

Feature, Operation, and Technology

WIZARD Digital Readouts provide the absolute latest in ease of operation, capability, and technology. As a result, ANILAM may alter and enhance operation, features, and capabilities without notice.

© Copyright 2004 ACU-RITE Companies Inc.

Contents

Contents	iii
Introducing the Wizard.....	1
The ANILAM Wizard 211 Keypad and Display Windows	2
The ANILAM Wizard 211 Back Panel.....	3
First-Time User Checklist	5
About This Manual.....	7
Function Code List.....	8
Beeper	9
Keyboard Entry Error	10
Presetting a Dimension	11
Resetting an Axis to Zero	12
Recalling a Preset Dimension	13
Clearing a Preset Dimension.....	14
Centering the Workpiece	15
Adding/Subtracting Values	16
Dividing an Axis Value by 2	17
Inch/Metric Conversion.....	18
Plus/Minus Key.....	19
Absolute/Incremental (ABS/INCR) Key	20
Absolute/Incremental.....	21
Absolute Zero Set – F 01.....	22
EverTrack™ Mode – F 02.....	23
Setting a Correction Factor – F 03	27
Correction Factor OFF/ON – F 04.....	28
Radius/Diameter per Axis – F 05.....	29
Approaching Zero Indicator	30
Approaching Zero – F 06.....	31
Last Position Save/Recall – F 10/F 11	32

Contents (Continued)

Axis Reset Only – F 16	33
Parameter Settings – F 20.....	34
Metric linear encoders	35
Inch Linear Encoders (BT or JB Linear Encoders).....	40
Beeper OFF/ON – F 21	41
Display Dim OFF/ON – F 22/F 23	42
Axis Designation – F24.....	43
Linear Encoder Error Detect OFF/ON – F 40/F 41.....	44
Diagnostics – F 45.....	45
Troubleshooting	47
Index	Index-1

Introducing the Wizard

Thank you for purchasing the ANILAM Wizard 211 Digital Readout (DRO).

Review these pages carefully to learn how to properly operate your new DRO.

The new DRO offers many features and capabilities never before used in conventional DRO systems.

This manual was written with you, the operator, in mind. Please take the time to study it. A little well-spent time now will ensure many years of trouble-free operation.

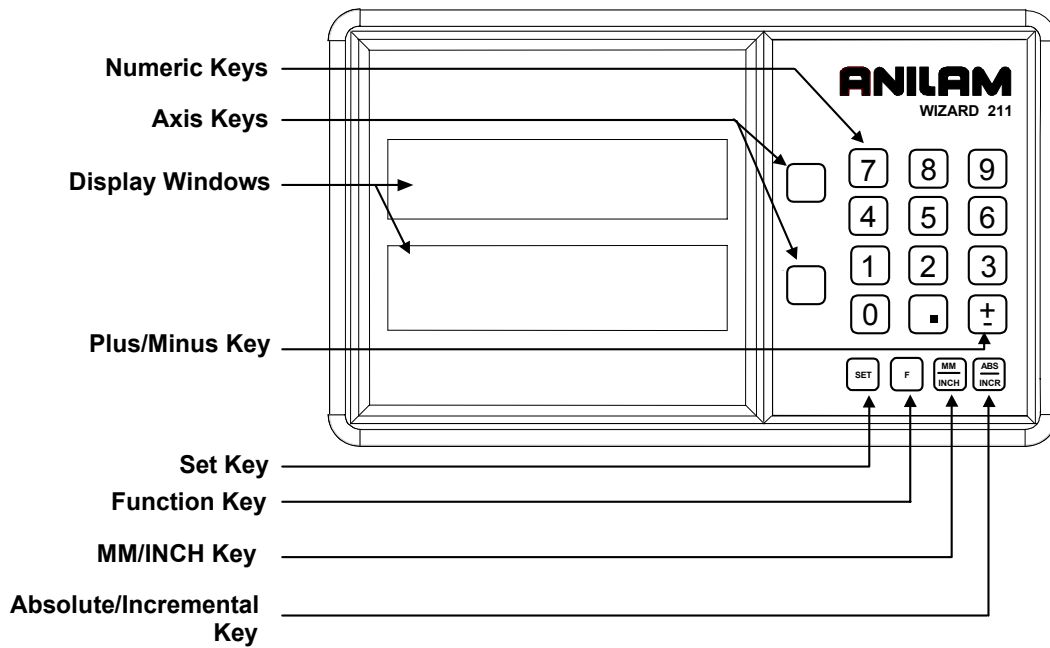
For additional information, please contact your local authorized ANILAM distributor, or call us directly:

ANILAM, Inc.
One Precision Way
Jamestown, New York, U.S.A., 14701
Phone: (716) 661-1700
FAX: (716) 661-1884
E-mail: anilaminc@anilam.com
<http://www.anilam.com>

Introducing the Wizard (Continued)

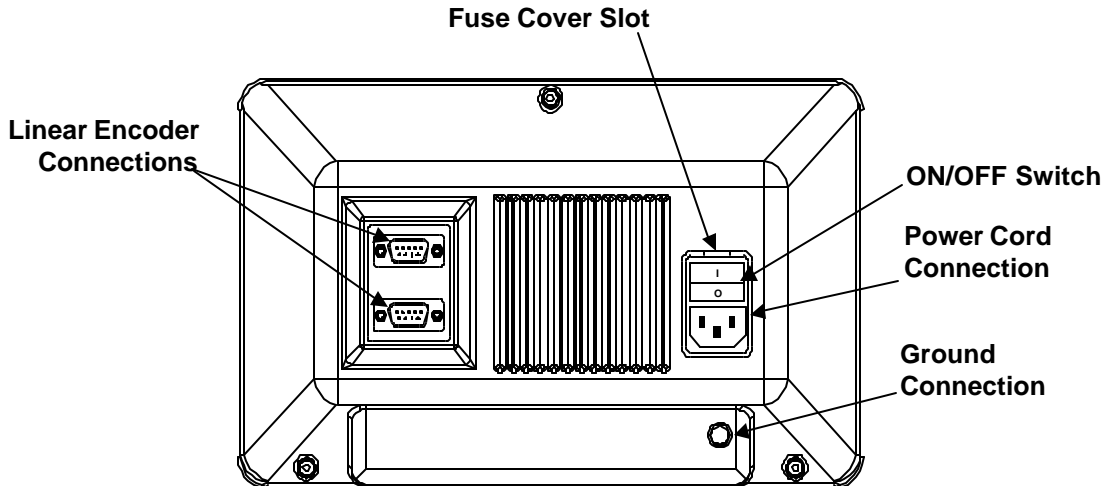
The ANILAM Wizard 211 Keypad and Display Windows

NOTE: The Wizard 211 DRO is available in one-axis, two-axis, and three-axis models. For simplicity, the procedures in this manual describe only a two-axis model.



Introducing the Wizard (Continued)

The ANILAM Wizard 211 Back Panel



Selecting the Operating Voltage

To select the operating voltage for the DRO:

1. Locate the **ON/OFF** switch on the back panel of the DRO and verify that the switch is in the **OFF (0)** position.

CAUTION: To avoid electrical shock, unplug the DRO from the power source.

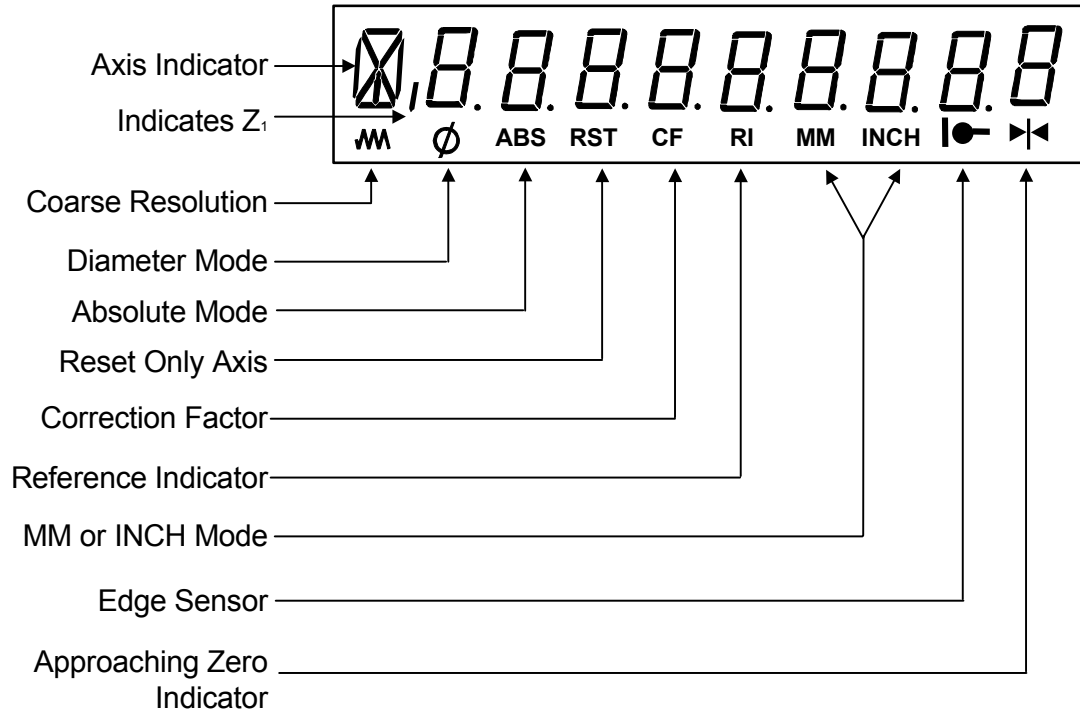
2. Insert a small screwdriver into the fuse cover slot and open the fuse cover.
3. Remove the fuse holder. Depending on the desired operating voltage, place the fuse in either the 115V slot or the 230V slot. For 115V, place the fuse on the right and the clip on the left; for 230 V, place the fuse on the left and the clip on the right.

NOTE: Both the 5 X 20 mm fuse (Europe) and the ¼ X 1-¼ inch fuse (U.S.), rated at 0.5 amps/250V can be used in the fuse holder.

4. The selected operating voltage is visible through the fuse cover window.
5. Insert the fuse holder into the **ON/OFF** switch and close the fuse cover.

Introducing the Wizard (Continued)

Your Wizard's display was designed to be easy to read:



First-Time User Checklist

Your new DRO has many preset values. Before you proceed, please review the following list to verify default settings. If you need to change any setting(s), refer to [Parameter Settings – F 20](#).

Description of Setting		Factory Setting	Your Setting
1. Mill/Lathe Operation		MILL	
2. Linear Encoder Resolution	Axis 1	5 μ m	
	Axis 2	5 μ m	
3. Direction of Count	Axis 1	+	
	Axis 2	+	
4. Position Tolerance Indicator	Axis 1	Set to Zero	
	Axis 2	Set to Zero	
5. Audible Keyboard Tone		ON	
6. Display Resolution	Axis 1	.0002 inches (.005mm)	
	Axis 2	.0002 inches (.005mm)	
7. Display Dimming		15 Minutes	
8. Radius Diameter Mode	Axis 1	Radius	
	Axis 2	Radius	

First-Time User Checklist (Continued)

For your safety, and to prevent damage to the machine, please verify the following:

9. DRO arm and DRO are securely mounted to the machine.	Yes/No
10. The DRO Input-voltage switch on the power-entry module (back panel) is set to the correct input voltage.	Yes/No
11. DRO is properly grounded. (Earth-ground to wall conduit or water pipe, for example, not grounded to the machine).	Yes/No
12. All cables are off the floor and out of the range of moving parts.	Yes/No

About This Manual

This manual contains limited text and enlarged graphics for easy use. Actual keystrokes are represented by graphics.

The format is as follows:

Function Heading

Function Description

Example with Keystrokes

Explanation of Procedures and Observations

NOTE: Indicates you must use caution.

Function Code List

You can access most DRO features using function codes. Function codes are codes entered by pressing the Function key (F) and then pressing the two-digit code for the feature. The following table lists the function codes available with your DRO.

Code	Description	Page
F 01	Absolute Zero Set	22
F 02	EverTrack™ Mode	23
F 03	Setting a Correction Factor	27
F 04	Correction Factor OFF/ ON	28
F 05	Radius/Diameter per Axis	29
F 06	Approaching Zero	31
F 10	Last Position Save	32
F 11	Last Position Recall	32
F 16	Axis Reset Only	33
F 20	Parameter Settings	34
F 21	Beeper OFF/ ON	41
F 22	Display Dim OFF	42
F 23	Display Dim ON	42
F 24	Axis Designation	43
F 40	Linear Encoder Error Detect OFF	44
F 41	Linear Encoder Error Detect ON	44
F 45	Diagnostics	45

Beeper

The beeper is a standard feature on all ANILAM DROs. Use the beeper to acknowledge a keystroke. For correct keystrokes, a short tone sounds. For incorrect keystrokes, a long tone sounds. The beeper default, preset by ANILAM, is **ON**.

To toggle the beeper OFF or ON, press feature **F 21**.

Keyboard Entry Error

If you enter an incorrect value, press the axis key again to clear the axis display. If you enter too many numbers on an axis, the DRO display reverts to zero on that axis. When this happens, enter the correct number again.

Presetting a Dimension

Presetting allows you to enter a dimension into an axis display. After you have preset the dimension, you can move the machine until the axis zeros.

You can also use the preset feature as a one-line recall mode if the display is set in Incremental Mode.

Example 1: Preset the dimension **1.2500 (31.75 mm)** on the axis display.

1. Press the desired axis key.

2. Press     to enter the dimension.

3. Press  to preset the dimension.

Example 2: Preset the dimension **-1.2500 (-31.75 mm)** on one axis display and **.5000** on another axis display.

1. Press the desired axis key.

2. Press      to set the axis to **-1.2500**.

3. Press the desired axis key.

4. Press   to set the axis to **.5000**.

5. Press 

NOTE: As a safety feature, the preset axis does not display movement until you press **SET**. If you press **SET** after the machine is moved the DRO automatically updates to the new position.

Resetting an Axis to Zero

When you reset an axis, the display for that axis reverts to zero

Use the reset feature when establishing part zero (datum) or clearing the axis at each part location (making incremental moves).

To reset one axis (X or Y):

1. Press the desired axis key to select the axis.

2. Press 

To reset two or more axes at the same time:

1. Press the desired axis keys to select the axes.

2. Press 

NOTE: See [Absolute Zero Set – F 01](#) also.


Recalling a Preset Dimension

This feature allows you to recall a preset dimension to the axis display.

Use this feature when making multiple moves of the same dimension.


NOTE: This feature works only in Incremental Mode.

To recall a preset dimension:

1. Press  to set the display to Incremental Mode.
2. Press the desired axis keys to select the axes.
3. Enter the incremental dimension.
4. Move the machine to zero.
5. Press the desired axis key twice to recall the dimension.

NOTE: You can recall a dimension after resetting absolute zero or in case of power loss.

To clear a preset dimension while in Incremental Mode:

1. Press the desired axis keys to select the axes.
2. Press  to set the display to Incremental Mode.

Clearing A Preset Dimension

When you clear a dimension, you automatically zero the previously entered dimension in an axis.

To clear preset dimensions, one axis at a time:

1. Press the desired axis key to select the axis.

2. Press 

To clear entered dimensions for all axes:

1. Press the desired axis keys to select the axes.


2. Press 

See also feature [Absolute Zero Set – F 01](#).

Centering the Workpiece

This feature allows you to quickly locate the centerline of the workpiece on each axis.

Example: To locate the centerline of the workpiece on an axis:

1. Zero the display at one edge of the workpiece.
2. Move to the opposite edge of the workpiece and touch the other edge.
3. Press 
4. Press the desired axis key to select the axis.
5. Move toward the center of the workpiece until the axis display indicates **0** (zero).

This is the centerline of the workpiece on the axis.






NOTE: The DRO compensates for the tool width.

Adding/Subtracting Values

This feature allows you to add or subtract values using the axis display values. You can add/subtract a value to/from a value displayed for a machine position or for values you enter in an axis display.

Example 1: The axis display indicates **3.425** inches (**87 mm**). To add **1.259** inches (**32 mm**) to this value:


1. Press the desired axis key to select the axis.

2. Press      







The axis display now indicates **4.685** (**119 mm**).

Example 2: To subtract **1.259** inches (**32 mm**) from **3.425** inches (**87 mm**) in the axis display:

1. Press the desired axis key to select the axis.

2. Press      

3. Press the desired axis key to select the axis.

4. Press       

The axis display now indicates **2.166** inches (**55 mm**).

Dividing an Axis Value by 2

This feature allows you to divide a value on an axis display by **2**. You can also divide any values entered in an axis display by **2**.






Example 1: The axis display indicates **7.126** inches (**181 mm**). To divide this value by **2**:

1. Press 
2. Press the desired axis key.

The axis display now indicates **3.563** inches (**90.5 mm**).

Example 2: To divide **1.260** inches (**32 mm**) by **2** in the axis display:

1. Press the desired axis key.

2. Press      

3. Press 
4. Press the desired axis key.

The axis display now indicates **.630** inches (**16 mm**).

Inch/Metric Conversion

This feature allows you to convert inch values to metric values and vice-versa on all axes.

Example: Change **1.000** inch to its metric (mm) equivalent.

1. Press the desired axis key to select the axis.

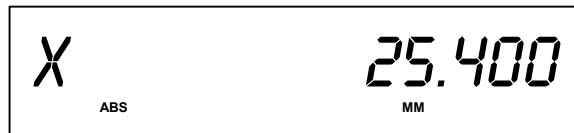
2. Press   

The DRO displays the following:



3. Press 

The DRO displays the following:

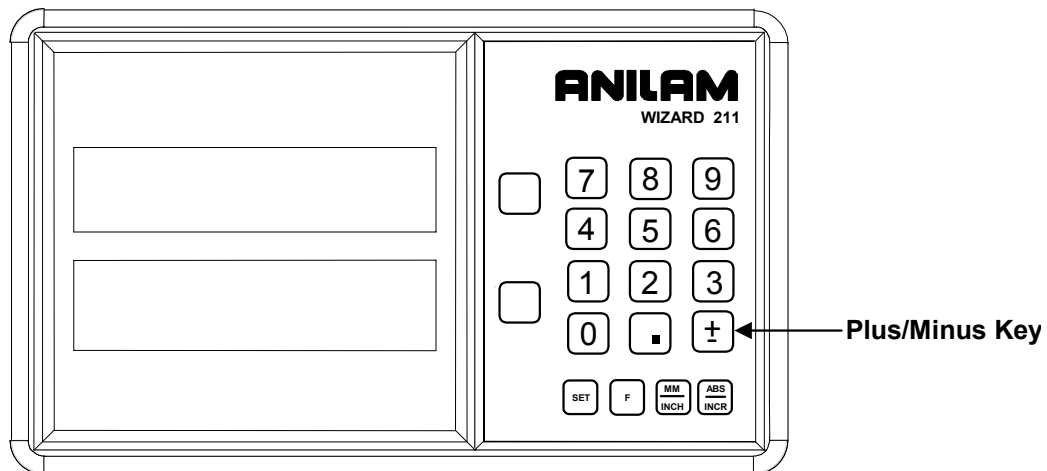


NOTE: The DRO displays the **INCH** or **MM** symbol under each axis display.

Plus/Minus (\pm) Key

The \pm key allows you to:

- Change the sign of a preset value.
- Change the direction of travel on a linear encoder while in parameter setting.
- Add and subtract values.

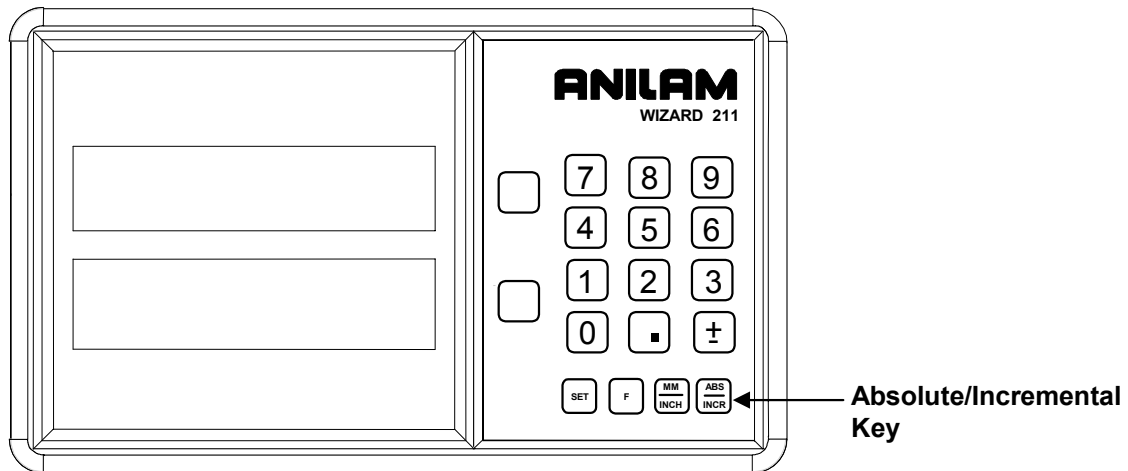


Absolute/Incremental (ABS/INCR) Key

When the Absolute Mode indicator is OFF, the DRO measures in increments and internally tracks the corresponding absolute (**ABS**) dimensions. This is a safeguard and serves to measure the total distance being moved along a given axis.

Press **ABS/INCR** to switch the display to Absolute Mode. The Absolute dimension from the starting point is indicated on the axis display.

Example: If a series of six 2.00 inch (50.8 mm) incremental moves are made, change to **ABS** Mode to display the total distance moved, which is 12.000 inches (304.80 mm).



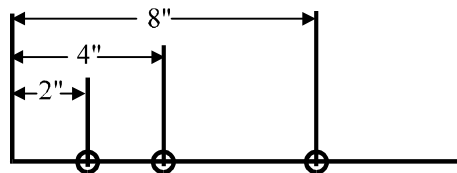
Absolute/Incremental

To get the most out of your DRO, you must understand the two types of dimensions most commonly used in blueprints: **Absolute (ABS)** and **Incremental (INCR)**.

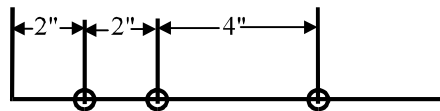
Absolute dimensions are measured from a common reference point. In Illustration **A**, below, the common reference or zero reference point is located on the lower left side of the part. These absolute dimensions are frequently used in blueprints.

Incremental dimensions have no common reference point. In Illustration **B**, below, each location is dimensioned in steps, or increments.

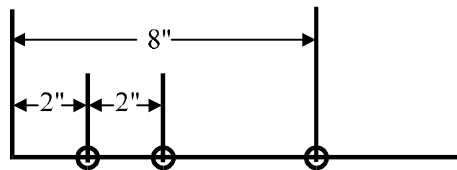
Sometimes, both absolute and incremental measurements are used in one drawing. In illustration **C**, below, the first two holes are dimensioned incrementally and the third hole is dimensioned from the absolute zero reference point. That is, it is dimensioned absolutely.



A. **Absolute** Dimensioning



B. **Incremental** Dimensioning



C. Combination **ABS – INCR** Dimensioning

Absolute Zero Set – F 01

F 01 allows you to establish a part zero.

The DRO clears all axes counters, both absolute and incremental, to zero. This is similar to **Power ON Mode**.

NOTE: This feature does not clear a dimension entered in Incremental Mode. To clear a dimension entered in Incremental Mode, refer to [Recalling a Preset Dimension](#).

1. Press the desired axis keys to select the axes.

2. Press    to reset all axes to zero.

EverTrack™ Mode – F 02





F 02 allows you to recall any position that has been previously stored in Absolute Mode, even in case of power outage. In EverTrack™ Mode, the DRO can access absolute references along the linear encoder. As a result, EverTrack™ Mode eliminates the need for a machine home position and a battery backup system.

NOTE: This feature works **ONLY** with **RBS-T** and **RBM-T** linear encoders, which contain absolute reference marks. If your application uses linear encoders without absolute reference marks, disable EverTrack™ Mode (*NO E-TRAC*) using [Parameter Settings – F 20](#).

EverTrack™ Mode can be set either one axis at a time or all axes at a time. If you have a three-axis application but require less than three axes, we recommend that you set the part zero positions one axis at a time.

Setting a Part Zero - One Axis

To set up a part zero position for one axis:

1. Press    to select the feature.
2. Press the desired axis key.
3. Press .

The axis display resets to zero and the Reference Indicator (**RI**) begins to blink.

CAUTION: During the following step, do not change the machine axis travel direction. This will cause an error.

4. Move the machine axis approximately 1 inch (25.4 mm) in one direction until the **RI** stops blinking and the display starts to count.
5. Move the machine axis to the part zero position.
6. Press the desired axis key.

EverTrack™ Mode – F 02 (Continued)

7. Press 

This will be the absolute part zero for the selected axis.

NOTE: You can also preset a dimension as long as the DRO is in Absolute Mode. The zero position corresponding to the stored preset dimension will be stored and can be recalled using EverTrack™ Mode.

CAUTION: If you require a temporary datum while in EverTrack™ Mode, we recommend you exit the feature before you set the temporary datum.

To exit EverTrack™ Mode:

8. Press   

9. Press 

The **RI** turns off and the DRO stores the absolute part zero position. Now you can perform an absolute reset (Axis key + Set key) on an axis or an absolute reset ([Absolute Zero Set – F 01](#)).

Setting a Part Zero – All Axes

To set up a part zero position for all axes:

1. Press   

to select the feature.

2. Press 

The axis displays reset to zero and the **RI**s begin to blink for each axis.

CAUTION: During the following step, do not change the machine axis travel direction. This will cause an error.

3. Move each machine axis approximately 1 inch (25.4 mm) in one direction until the **RI**s stop blinking and the display starts to count.

EverTrack™ Mode – F 02 (Continued)

4. Move each machine axis to the part zero position.

5. Press   

This will be the absolute part zero position.

NOTE: You can also preset dimensions as long as the DRO is in Absolute Mode. The zero position corresponding to the stored preset dimensions will be stored and can be recalled using EverTrack™ Mode.

To exit EverTrack™ Mode:

6. Press   

7. Press 

The **RI** turns off and the DRO stores the absolute part zero position.

8. Continue with normal operations.

Recalling a Part Zero Position

To recall a part zero position activate the **RI** as follows:

One Axis

1. Press    to select the feature.

Press the desired axis key.

Press 

The axis display resets to zero and the **RI** begins to blink.

EverTrack™ – F 02 (Continued)

All Axes

1. Press **F** **0** **2** to select the feature.

Press **SET** to select all axes.

The axis displays reset to zero and the **RIs** begin to blink for each axis.

CAUTION: During the following step, do not change the machine axis travel direction. This will cause an error.

2. Move the machine axis approximately 1 inch (25.4 mm) in one direction until the display starts counting.

The value displayed on the axis display indicates the exact distance from the absolute part zero position.

3. Move the machine axis until the display indicates zero.

Zero indicates the exact absolute part zero position.

To exit EverTrack™ Mode:

4. Press **F** **0** **2**

5. Press **F**

Setting a Correction Factor – F 03

F 03 allows you to compensate for nominal linear inaccuracies due to your machine or for adding material shrinkage/expansion, as in mold work.

The maximum allowable settings are $\pm 40\%$.

Example: Consider a 1.325-inch (33.655 mm) travel on the display that is only 1.320-inch (33.528 mm) actual distance moved on the axis.






To set a correction factor for the axis:

1. Press    to activate the **CF** feature.

2. Press the desired axis key to select the axis.

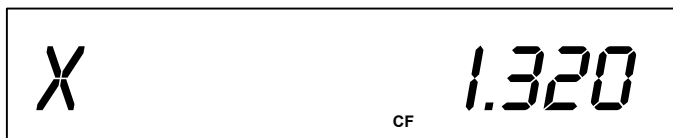
3. Move the machine axis to **1.325** on the display.

4. Press the desired axis key again.

5. Press      to enter the actual distance.

6. Press 

The Correction Factor (**CF**) indicator in the displayed axis turns ON indicating the Correction Factor is active.



Correction Factor OFF/ON – F 04

F 04 allows you to turn the Correction Factor (**CF**) OFF or ON selectively and store the values in memory.

To turn the correction factor ON or OFF:

1. Press **F** **0** **4** to select the feature.
2. Press the desired axis key to select the axis to enable or disable **CF**.
3. If necessary, turn the correction factor ON or OFF for any axis.

To clear the correction factor from memory:

1. Press **F** **0** **3**
2. Press the desired axis key to select the axis to clear.
3. Press the axis key twice to clear the **CF**.
4. Press **SET**

Radius/Diameter per Axis – F 05

F 05 allows you to display a specified axis in Diameter Mode. The DRO doubles axis movement and resolution In Diameter Mode.

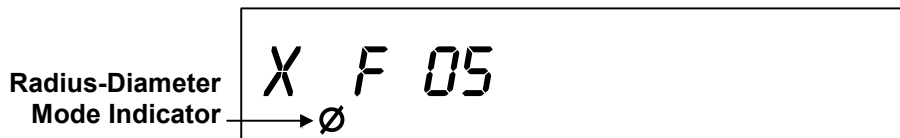
Example 1: Set an axis as a diameter.

1. Press **F** **0** **5** to select the feature.
2. Press the desired axis key to select the axis.
3. Press **SET** to activate the feature.

Example 2: Set two or more axes as diameters.

1. Press **F** **0** **5** to select the feature.
2. Press the desired axis keys to select the axes.
3. Press **SET** to activate the feature.

The DRO displays the radius-diameter mode indicator in the activated axis display.



To turn Diameter Mode OFF, press **F 05** again and press the axis key. The DRO turns OFF the radius-diameter mode indicator symbol, indicating the axis has returned to its normal setting.

Approaching Zero Indicator

This feature indicates that the machine is within a set range and is approaching zero.
The set range for the DRO is .5000 inches (12.70 mm).



Approaching Zero – F 06

F 06 indicates when an axis is within a set range and approaching zero, or at zero.

1. Press **F** **0** **6** to select the feature.
2. Press the desired axis key to select the axis.

The approaching zero indicator appears on the display.

3. Press **SET** to activate the feature.

OR

4. Press **F** to exit without changing the setting.

NOTE: The following symbols in the lower right corner of the display indicate the axis is approaching zero, on zero, or past zero. The arrows indicate the direction of travel.

X .50000 ▸

Approaching zero.

X .00000 |

At zero.

X -.50000 ◀




Past zero.

Last Position Save/Recall – F 10/F 11




F 10 allows you to save the machine's last position before turning OFF the machine;
F 11 allows you to recall the saved position after turning ON the machine.

IMPORTANT: Lock all axes of machine movement first.

To select the feature and save the last position:

1. Press   
2. Turn OFF the DRO power.

To recall the saved position:

1. Turn ON the DRO power.
2. Press   

to select the feature and recall the last machine position to the display.

3. Unlock the machine and continue with the job.

NOTE: This feature stores display information only. It does not track table movement when power is turned OFF.


Axis Reset Only – F 16

F 16 is useful for quick positioning. Press the axis key once to zero the display in either **ABS** or **INCR** Mode.


Example 1: Set X-axis as Axis Reset Only.

1. Press    to select the feature.

2. Press the desired axis key to select the axis.

3. Press  to set the feature and return to the operation.

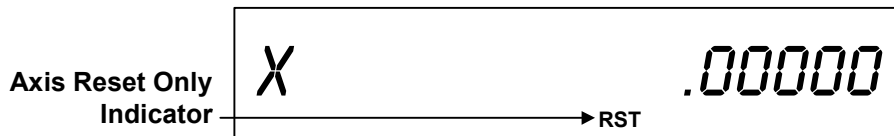
Example 2: Set X- and Y-axes as Axis Reset Only.

1. Press    to select the feature.

2. Press the desired axis key to select the axis.

3. Press  to set the feature and return to the operation.

The DRO turns ON the **RST** symbol in the axis display.



NOTE: Perform the same procedure to turn OFF Axis Reset.

Parameter Settings – F 20

F 20 allows you to setup encoder parameters and axis display resolutions. There are two types of resolution:

- **Encoder Resolution** the resolution of the measurement, an encoder parameter.
- **Display Resolution** the resolution of presented values in the display.

You can vary the resolution of the dimensions in the linear axis displays for both INCH and MM mode. The display resolution can be set individually for each axis.

F 20 allows you to enter the specific encoder properties that are used for feedback. These can be set up individually for each axis. Your DRO supports the following types of encoders:

- [Metric Linear Encoders](#) (encoders with grating pitch measured in microns, μm)
- [Inch-Based Linear Encoders](#) (encoders with grating pitch measured in inches)

All modern linear encoders are metric.

To set up encoder and axis display parameters:

1. Press    to select the feature.
2. Press the desired axis key(s) to select the axis.

NOTE: You can select one or more axes to be set up simultaneously as long as they use the same encoders and the same display format. You must repeat the **F 20** feature and select the appropriate axis (axes) for each type of encoder set up.

The DRO displays one of the following in the selected axis display(s):

METRIC

INCH

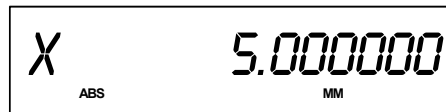
Parameter Settings – F 20 (Continued)

3. Press   to scroll through the encoder type options and set the desired encoder type.

Metric Linear Encoders

NOTE: It is presumed that steps 1 through 3 have been performed first and Metric linear encoder type was selected. If you selected Inch linear encoder type, go to the Inch Linear Encoders (BT or JB Linear Encoders) section.

The DRO displays the following in the selected axis display(s) (for example, the X-axis):



The axis designation is blinking indicating that a value can be entered. The default value for the encoder resolution is 5 μm . This value must be exact for the specific encoder used for feedback.

The following table lists the encoder resolution (in microns) for common ANILAM encoders:

Linear Encoder Type	Encoder Resolution
RBS-05T, RBM-05T	.5
RBS-1, RBS-1T, RBM-1T, B-1, E-1	1
RBS-2, A-2, C-2, E-2, F-2,	2
RBS-5, RBS-5T, RBM-5T, PGS-E, PGS-P, B-5, C-5, E-5, KM-5, 5 micron resolution Rack and Pinion	5
RBS-10, A-10, C-10, D-10, KM-10 10 micron resolution Rack and Pinion	10

Parameter Settings – F 20 (Continued)

Refer to the previous table for the encoder resolution settings for common ANILAM encoders.

NOTE: If the table does not list the encoder resolution setting for the encoder you are using and you do not know the exact encoder resolution, call ANILAM for advice. If you are using **BT** or **JB** linear encoders (inch linear encoders) refer to the [Inch Linear Encoders](#) section.

If you need to change the encoder resolution setting:

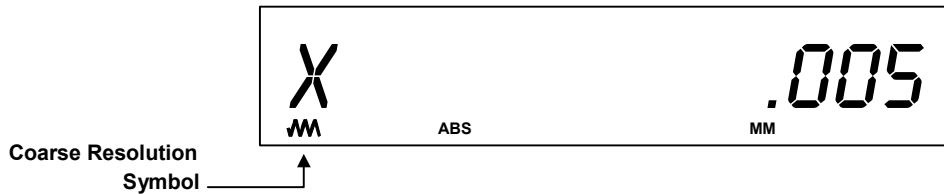
4. Enter the setting for the encoder you are using listed in the table.

To change the direction of travel:

5. Press  to change the direction of positive travel.
6. Press  to set the encoder resolution and direction of travel.

Parameter Settings – F 20 (Continued)

The DRO displays the following in the selected axis display(s):



This setting is for the resolution of the axis display(s) when you have toggled the MM/INCH key to MM mode only. The axis designation is blinking indicating that you can enter a value. The DRO will default the same display resolution as the encoder resolution (in this example, **.005 MM**). ANILAM recommends that you use the same display resolution as the encoder resolution.

7. Press  to scroll through the display resolution options.

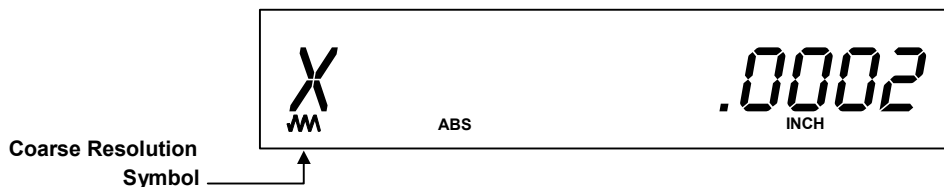
The display resolution options for MM mode are:

.0002, .0005, .001, .002, 005, .01, .02, .05, .1, .2, .5 MM

NOTE: If the selected display resolution is coarser than the encoder resolution, the DRO turns on the Coarse Resolution Symbol in the axis display(s).

8. Press  to select the desired display resolution in MM mode.

The DRO displays the following in the selected axis display(s):



Parameter Settings – F 20 (Continued)

This setting is for the resolution of the axis display(s) when you have toggled the MM/INCH key to INCH mode only. The axis designation is blinking indicating that you can enter a value. The DRO will default the same display resolution as the encoder resolution (in this example, **.0002 INCH**). ANILAM recommends that you use the same display resolution as the encoder resolution.

9. Press  to scroll through the display resolution options.

The display resolution options for INCH mode are:

.00001, .00002, .00005 .0001, .0002, 0005, .001, .002, .005, .01, .02, Inches

NOTE: If the selected display resolution is coarser than the encoder resolution, the DRO turns on the Coarse Resolution Symbol in the axis display(s).

10. Press  to select the desired display resolution in INCH mode.

The DRO displays one of the following in the axis display:

Option	Setting	Linear Encoder
i20	r05	RBS-.5T and RBM-.5T
i20	r1	RBS-1T and RBM-1T
i20	r5	RBS-5T and RBM-5T
no E-trac		All other linear encoders

Parameter Settings – F 20 (Continued)

To reset all parameter settings to the original factory configuration:

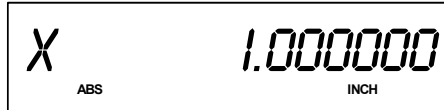
1. Press  for approximately **5** seconds (Press **F** again to cancel the reset).
2. Press  to reset all parameters.

Parameter Settings – F 20 (Continued)

Inch Linear Encoders (BT or JB Linear Encoders)

NOTE: It is presumed that steps 1 through 3 have been performed first and Inch linear encoder type was selected. If you selected Metric linear encoder type, go to the Metric Linear Encoders section.

The DRO displays the following in the selected axis display(s) (for example, the X-axis):






The axis designation is blinking indicating that a value can be entered. The default value for the encoder resolution is .0001 inch (ten thousands of an inch). This value must be exact for the specific encoder used for feedback. Refer to the previous table for the encoder resolution settings for common ANILAM encoders.

Beeper OFF/ON – F 21




The beeper is a standard feature on all ANILAM DROs. Use the beeper to acknowledge a keystroke. For correct keystrokes, a short tone sounds. For incorrect keystrokes, a long tone sounds.

F 21 allows you to enable/disable the beeper in the DRO. The default setting is ON.

To turn the beeper OFF:



1. Press   

To turn the beeper ON:

1. Press   

Display Dim OFF/ON – F 22/F 23

F 22 allows you to activate Dim Mode; **F 23** allows you to deactivate Dim Mode. To increase the life of the display, the DRO automatically dims if it is not used for 15 minutes (similar to a computer terminal's screen-saver mode). When you activate Dim Mode the axis displays show blinking decimal points. The DRO remains in Dim Mode until you press a key or move one or more linear encoders. (Default: ON)

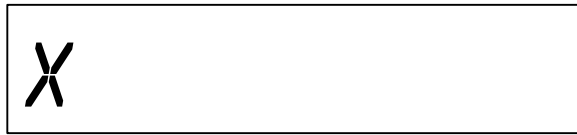
1. Press **F** **2** **2** to select DIM ON.

Display in axis window appears, if available.
2. Press **F** **2** **3** to select DIM OFF.

Display in axis window appears, if available.

NOTE: You can disable this feature, however the DRO still goes into Dim Mode after standing idle for one hour.

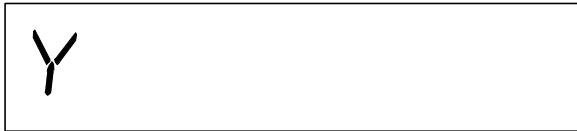
Axis Designation – F 24

F 24 allows you to assign an axis to each display you select. You can change the assignment of any axis to **X**, **Y**, **Z**, **Z1**, or **W**.

1. Press    to select the feature.



2. Press the desired axis key to switch axis display.



3. Press  to activate the change.

OR

4. Press  to exit without changing the setting.

Linear Encoder Error Detect OFF/ON – F 40/F 41

Your DRO has advanced Linear Encoder error-checking capability. This feature determines if there are any Linear Encoder miscounts or repeatability problems. **F 40** allows you to turn OFF Linear Encoder Error Detect; **F 41** allows you to turn ON Linear Encoder Error Detect. (Default: ON)

1. Press **F** **4** **0** to select **OFF** and deactivate all axes.

The DRO displays the following in the axis window:

ENCE OFF

2. Press **F** **4** **1** to select **ON** and activate all axes.

The DRO displays the following in the axis window:

ENCE ON

If the DRO detects an error, it displays the error in that axis display. The other axes displays remain blank for a short time and then the beeper sounds.

For example:

X ERROR

Diagnosics – F 45

F 45 allows you to perform system diagnostic tests on the keyboard, internal EEPROM, and internal counters. If any of these tests fails, contact your local distributor or ANILAM Customer Services. You do not need to unplug the linear encoders for these tests.


Display Test

1. Press    to display all segments of the display.

EEProm Test

2. Press  to activate the internal EEPROM test.
- The DRO displays the results in the axis window:
EEProm nF (no fail).
EEPR. FAIL

Counters Test

3. Press  to activate the internal counters test.
- The DRO displays the results in the axis window:
Count nF (no fail).
CNT FAIL

Diagnostics (Continued)

Keyboard Test

4. Press  to activate the keyboard test.
5. Press any key on the DRO to display the key on the DRO display.

Blank Test

6. Press  for 2 seconds to blank all segments of the display.
7. Press  to end the system diagnostics test.

Troubleshooting

This section lists problems that could arise with the DRO, and provides possible solutions to correct these problems.

Symptom	Solution
□ Axis display does not illuminate.	<ol style="list-style-type: none">1. Check that the power cord is properly connected, the DRO is turned on, and the fuse is not blown.
□ When you move any axis, the displays do not update.	<ol style="list-style-type: none">2. Check the AC voltage where the power cord is connected.3. If all of the above are checked and OK, contact your local distributor or ANILAM Customer Services.
□ When you press a key, the beeper does not sound.	<ol style="list-style-type: none">1. Check that the linear encoders are properly connected.2. Run the system diagnostic tests (F 45).3. If the DRO fails the diagnostics tests, contact your local distributor or ANILAM Customer Services.4. If the DRO passes the diagnostics tests, turn on Linear Encoder Error Check (F 41).5. Move the axis that is not updating.6. If the DRO displays <code>ERROR</code> in the axis display, contact your local distributor or ANILAM Customer Services.
□ When you press a key, the beeper does not sound.	<ol style="list-style-type: none">1. Verify that the Beeper (F 21) is enabled.2. If the Beeper is enabled, but still does not sound, contact your local distributor or ANILAM Customer Services.

Troubleshooting (Continued)

Symptom	Solution
<ul style="list-style-type: none"><li data-bbox="250 344 792 411">❑ When the power is turned OFF, information in memory is lost.<li data-bbox="250 436 737 504">❑ The DRO does not retain the set parameters as they were entered.<li data-bbox="250 529 716 554">❑ Information recalled is incorrect.<li data-bbox="250 579 792 646">❑ The DRO does not respond when you press a key or several keys.	<ol style="list-style-type: none"><li data-bbox="839 344 1300 411">1. Contact your local distributor or ANILAM Customer Services.

Index

A

absolute dimensions, 21
absolute zero marker pulse – F 02,
23, 24, 26
absolute zero set – F 01, 21
absolute/incremental, 21
absolute/incremental (ABS/INCR)
key, 20
acknowledging, a keystroke, 9, 41
adding/subtracting values, 16
approaching zero – F 06, 31
approaching zero indicator, 30
audible keyboard tone, 5
axis designation – F 24, 43
axis reset only – F 16, 33

B

back panel, Wizard 211, 3
beeper, 9, 44, 47
beeper OFF/ON – F 21, 41
blank test, 46
BT or JB, linear encoders, 35, 40

C

cables, 6
centering, the workpiece, 15
CF feature, 27
checklist, first-time user, 5
clearing
a preset dimension, 14
correction factor from memory,
28
coarse resolution symbol, 37, 38
connections, illustration, 3
console arm, 6
console display, illustration, 4

convert, inch values to metric
values, 18
correct, keystrokes, 9, 41
correction factor, 27
correction factor OFF/ON – F 04,
28
counters test, 45

D

datum, 12
default settings, 5
diagnostics – F 45, 45
diameter mode, 29
diameter mode indicator, 29
dim mode, 42
direction of travel, 31, 36, 40
disclaimer, iii
display
console, illustration, 4
dim OFF/ON – F 22/F 23, 42
dimming, 5
resolution, 5
test, 45
dividing, an axis value by 2, 17

E

earth-ground, 6
EEProm test, 45
encoder resolution, listed in
microns, 35
error-checking circuitry, 44
establishing, part zero, 12

F

F 01, 22
F 02, 23
F 03, 27
F 04, 28

Index

F 05, 29

F 06, 31

F 10, 32

F 11, 32

F 16, 33

F 20, 34

F 21, 41

F 22, 42

F 23, 42

F 24, 43

F 40, 44

F 41, 44

F 45, 45

function code list, 8

G

ground, 6

ground connection, 3

I

inch values to metric values,
convert, 18

inch/metric conversion, 18

incremental

dimensions, 21

moves, 20

introducing, the Wizard, 1

K

keyboard

entry error, 10

test, 46

keypad, illustration, 2

L

last position save/recall –
F 10/F 11, 32

linear encoder

axis display, 38

BT or JB, 35

connections, illustration, 3

error check, 47

error detect OFF/ON –

F 40/F 41, 44

metric, 35

miscounts, 44

resolution, 5

linear inaccuracies, 27

M

making

incremental moves, 12

multiple moves of the same
dimension, 13

manual format, 7

material, shrinkage/expansion,
27

metric linear encoders, 35

mill/lathe operation, 5

O

on zero, 31

ON/OFF switch, 3

one-line recall mode, 11

P

parameter settings – F 20, 34

part zero, 22

position, recalling, 25

setting, all axes, 24

past zero, 31

plus/minus (\pm) key, 19

position tolerance indicator, 5

Index

power

- cord, 47
- cord connection, 3
- loss, 13
- ON mode, 22

preset values, 5

presetting, a dimension, 11

Q

quick positioning, 33

R

radius diameter mode, 5

radius/diameter per axis –

F 05, 29

radius-diameter mode indicator, 29

RBM-T linear encoders, 23

RBS-T linear encoders, 23

recall

- a dimension, 13
- a part zero position, 25
- a preset dimension, 13
- last position, 32

resetting

- absolute zero, 13
- an axis to zero, 12

RST symbol, 33

S

setting, a correction factor – F 03,
27

system diagnostic tests, 45, 47

T

troubleshooting, 47

turning the machine OFF, 32

W

warranty, iii

ANILAM

U.S.A.

ANILAM
One Precision Way
Jamestown, NY 14701
☎ (716) 661-1899
☎ (716) 661-1884
✉ anilaminc@anilam.com

ANILAM, CA

16312 Garfield Ave., Unit B
Paramount, CA 90723
☎ (562) 408-3334
☎ (562) 634-5459
✉ anilamla@anilam.com

**Dial "011" before each number
when calling from the U.S.A.**

China

Acu-Rite Companies Inc.
(Shanghai Representative Office)
Room 1986, Tower B
City Center of Shanghai
No. 100 Zunyi Lu Road
Chang Ning District
200051 Shanghai P.R.C.
☎ +86 21 62370398
☎ +86 21 62372320
✉ china@anilam.com

France

ANILAM S.A.R.L.
2 Ave de la Cristallerie
B.P. 68-92316
Sevres Cedex, France
☎ +33-1-46290061
☎ +33-1-45072402
✉ courrier@acu-rite.fr

P/N 70000421B
6-February-04

Germany

ANILAM GmbH
Fraunhoferstrasse 1
D-83301 Traunreut
Germany
☎ +49 8669 856110
☎ +49 8669 850930
✉ info@anilam.de

Italy

ANILAM Elettronica s.r.l.
10043 Orbassano
Strada Borgaretto 38
Torino, Italy
☎ +39 011 900 2606
☎ +39 011 900 2466
✉ info@anilam.it

Taiwan

ANILAM, TW
No. 246 Chau-Fu Road
Taichung City 407
Taiwan, ROC
☎ +886-4 225 87222
☎ +886-4 225 87260
✉ anilamtw@anilam.com

United Kingdom

ACI (UK) Limited
16 Plover Close, Interchange Park
Newport Pagnell
Buckinghamshire, MK16 9PS
England
☎ +44 (0) 1908 514 500
☎ +44 (0) 1908 610 111
✉ sales@aciuk.co.uk

www.anilam.com