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Electronic Dial Indicator

CORE

• Absolute Sensor – Never lose position (even when replacing batteries)
• Long Battery Life – Approximate Hours:
  Casual Daily Use +10,000 Hours;
  Average Daily Use +6,000 Hours;
  Wireless Communication Use 1,000 Hours
• No Over-Speed Error – Fast spindle speeds
• Fixed Scale – More robust, reliable, & compact design than a moving scale
• Incremental Measuring Mode
• Large Display with ½” Tall Numbers
• Off Button
• Rotating Bezel 270 degrees
• + / - Travel Direction Button
• Floating Zero
• Resolution Change Button
• IN mm Button – Change displayed units
• Low Battery Warning Icon
• Data Send Button
• Data Cables USB, MTI (Digimatic), RS232
• Built-In wireless short range radio module (standard equipment) Download “Electronic Dial Indicator” App in IOS and Android Stores.
• Made In USA

DATA

Send Measurement

IN

Inch

mm

Millimeter

RES

Resolution

Battery Warning

Wireless Data

Cable Connection

- 

Travel Positive

+

Travel Negative
**BUTTON FUNCTIONS**

**ON Zero**  
Powers indicator ON. Zeros / clears reading  
- **a. To Power Indicator On:** Press & Release **ON ZERO**  
- **b. To Clear / Zero Display:** Press & Release **ON ZERO**  
  when LCD is On. (Zero on Release of Button)

**OFF**  
Powers indicator off  
- **a. To Power Indicator Off:** Press & Release **OFF**  
  (position & settings are not lost when indicator is off)

**DATA**  
Sends Data from indicator with cable or wireless radio module  
- **a. To Send Data:** Press & Release **DATA**  
- **b. If cable is connected, the indicator reading will be sent**  
  through the data output cable. If wireless output is setup,  
  the indicator reading will be sent by wireless output.  
- **c. A computer can also request readings & you can setup the indicator to automatically send**  
  readings wirelessly  
- **d. See Data Output & Wireless Instructions for more information.**

**IN mm**  
Controls the display units (default is IN / English)  
- **a. To Change From Inch To Millimeter Or Millimeter To Inch:** Press & Release **IN mm**  
- **b. mm for millimeter (metric) or IN for inch (English) will appear on right side of display.**

**RES**  
Changes display resolution  
- **a. To Change Resolution:** Press & Release **RES**. Repeat until desired resolution is displayed.  
- **b. IN .00005”; .0001”; .0005”; .001” mm .001mm; .002mm; .01mm; .02mm**  
- **c. Resolution can only be changed to a coarser resolution than the base indicator purchased.**

**+ / -**  
Changes spindle / travel direction  
- **a. To Change Travel Direction Of Reading:** Press & Release **+ / -**. + – or – + icons appear on LCD  
  for 1 second  
- **b. + – will count negative with the inward direction of spindle travel. – + will count positive with**  
  the inward direction of spindle travel.  
- **c. – is displayed for negative readings & no sign is displayed for positive readings.**

**Note:**  
Factory reset: Press & Hold **ON ZERO** & **OFF** simultaneously until RESET appears on LCD
Electronic Dial Indicator

• Absolute Sensor – Never lose position (even when replacing batteries)
• Long Battery Life – Approximate Hours:
  Casual Daily Use +10,000 Hours;
  Average Daily Use +6,000 Hours;
  Wireless Communication Use 1,000 Hours
• No Over-Speed Error – Fast spindle speeds
• Fixed Scale – More robust, reliable, & compact design than a moving scale
• 3 Measuring Modes:
  1) INC (Incremental)
  2) PRESET (Change Zero Value)
  3) TIR (Total Indicator Reading) Scroll through TIR, Max, and Min Values
• Large Display with ½” Tall Numbers
• Off Button
• Rotating Bezel 270 degrees
• TOL (Tolerance) Program HI / LOW Values
• Red (No Go) & Green (Go) LEDs for TOL (Tolerance) and DATA
• + / - Travel Direction Changeable
• Floating Zero
• Resolution – Changeable
• Programmable Ratio
• IN mm Button – Change displayed units
• Low Battery Warning Icon
• Programmable Lock
• Data Send Button
• Data Cables USB, MTI (Digimatic), RS232
• 200 Data Measurements Stored in Indicator.
• CALC software (optional) allows for measurement Formula & Lookup Tables to be downloaded into indicator.
• Made In USA
VRS Icons & Program Functions

- **Analog Display**
  - **CALC** Formula or Table Measurement
  - **SET** Programming or Setup
  - **- +** Travel Positive
  - **+ -** Travel Negative
  - **DATA** Send or Store Measurement
  - **2ND** Secondary Button Functions
  - **RATIO** Ratio Measurements

- **Lock Functions & Features**
  - **Cable Connection**
  - **Battery Warning**
  - **Wireless Data**

- **Go/No Go LEDs** (Green & Red)

- **Programming Functions** *(apply, move, change)*
  - **apply** used to Enter Desired Program in **TOL, RATIO, PRESET, RES, DATA**
  - **move** used to Move or Position the Flashing Icon when Programming in **TOL, RATIO, PRESET, DATA**
  - **change** used to modify value that is being programmed.

- **FRZ** Holds Freezed Reading
- **MIN** Holds Minimum Reading
- **MAX** Holds Maximum Reading
- **TIR MODE** for Total Indicator Reading
- **PRESET MODE** for Absolute Origin other than Zero
- **INC MODE** for Incremental (Standard MODE)
- **LOW TOL** Lowest Tolerance Reading
- **HI TOL** Highest Tolerance Reading
- **TOL** Tolerance
- **RES** Resolution

- **Programming Functions** *(apply, move, change)*
  - **apply** used to Enter Desired Program in **TOL, RATIO, PRESET, RES, DATA**
  - **move** used to Move or Position the Flashing Icon when Programming in **TOL, RATIO, PRESET, DATA**
  - **change** used to modify value that is being programmed.
ON Zero  Powers indicator ON. Zeros / clears reading
   a. To Power Indicator On: Press & Release **ON ZERO**
   b. To Clear / Zero Display: Press & Release **ON ZERO**
      when LCD is On. (Zero on Release of Button)

OFF MODE  Powers indicator OFF. Changes MODE from INC, PRESET, & TIR
   a. To Power Indicator OFF: Press & Release **OFF MODE**
      (position & settings are not lost when indicator is off)
   b. To Change Indicator MODE: Press & Hold **OFF MODE** The LCD
      ICONs will change from INC to PRESET to TIR. Release button when
      the desired MODE flashing on LCD. See 2nd (secondary) function.
      page for using PRESET or TIR
   c. OFF can be used to exit programming functions (Ratio, Tolerance,
      Presets, Radio, Lock).

HOLD  Toggles HOLD on & off. Changes HOLD from MAX (Maximum
      Reading), MIN (Minimum Reading) & FRZ (Freeze Reading)
   a. To Toggle HOLD On /Off: Press & Release **HOLD**
   b. To Select Type of HOLD: Press & Hold **HOLD**. The LCD ICONs scroll
      through MAX to MIN to FRZ. Release button when desired HOLD
      function is flashing on LCD

IN mm  Controls the display units (default is English)
   a. To Change From Inch To Millimeter Or Millimeter To Inch:
      Press & Release **IN mm**
   b. mm for millimeter (metric) or IN for inch (English) will appear on
      right side of display.

2ND  Enables 2ND functions (DATA, + / -, RES) & 3rd functions
      (Lock, Stored Readings, Analog Display, Data Output, Ratio)
      View Sections on 2nd Button Functions & 3rd Button Functions
Primary BUTTON FUNCTIONS

**TOL**

Toggles TOL (Tolerances) On & Off.

a. To Toggle TOL On/Off: Press & Release **TOL**. If no tolerances are programmed, a large tol will be displayed & both the LOW & HI icons will flash.

b. To Program LOW & HI tolerances: Toggle TOL On (step a.).

Press & Hold **TOL** until HI is flashing & release **TOL**.

Use move (2ND), change (TOL), apply (HOLD) to program HI tolerance. *move* (2ND) scrolls flashing icon left to right. *change* (TOL) toggles value of flashing icon. *apply* (HOLD) stores value of HI or LOW.

c. When the value is out of tolerance the numbers will flash and the LOW or HI will flash. If the LEDs are turned on, the Green or Red LEDs will flash for 2 seconds when in tolerance and 4 seconds when out of tolerance. Repeat to program LOW.

d. To Disable / Enable LEDs for TOL: use the following 3 button sequence.

1. Press & Release **2ND**
2. Press & Release **ON ZERO**
3. Press & Hold **INmm** until display changes

   (All On, Off, DATA, or Off will be displayed).

   *Use change (TOL)* to scroll All On (LEDs will flash when using the TOL & DATA), off (turned off for both TOL & DATA), tol (turned on for tolerance only), DATA (turned on for Data only).

   Use *apply (HOLD)* to store desired setting

Note:

Factory reset: Press & Hold **ON ZERO** & **OFF** simultaneously until RESET appears on LCD.
**2nd BUTTON FUNCTIONS**

**DATA**
Send Data through cable, wireless radio module, or store readings in indicator.

a. To Send Data or Store Readings:
1) Press and Release **2ND**
2) Press & Release **DATA (HOLD)**.

Cable: If cable is connected, the data will be sent through the data output cable. For 1 second **DATA** icon will appear. Wireless: If wireless output is enabled, the indicator reading will be sent by wireless output. For 1 second **DATA** icon will appear.

Stored Reading: With no cable connection & wireless not enabled, readings will be stored in indicator. For 1 second **DATA** icon will appear.

NOTE: A computer can also request readings & you can setup the indicator to automatically send readings over wirelessly

b. To View Stored Readings:
1) Press & Release **2ND**
2) Press & Release **ON ZERO**
3) Press & Release **HOLD**, **DATA** icon appears on LCD
4) Press & Release **move (2nd)**
5) Repeat step 4) to scroll readings. The newest to oldest reading is displayed.

To Clear (erase) Stored Readings: Press & Hold **ON ZERO**
To Exit Stored Readings: Press & Release **DATA (HOLD)**

**+ / -**
Changes spindle / travel direction

a. To Change Travel Direction Of Reading:
1) Press & Release **2ND**
2) Press & Release **+ / - INmm**

For 1 second + – or – + icons appears on LCD.

+ – counts negative with the inward direction of spindle travel.
– + counts positive with the inward direction of spindle travel.
– displays for negative readings & no sign is displayed for positive readings.

**RES**
Changes display resolution

a. To Change Resolution:
1) Press & Release **2ND**
2) Press & Release **RES (TOL)**.

**SET** will flash on LCD. Repeat Step 2 until desired resolution is displayed.

Press & Release **apply (HOLD)** to store resolution
Resolutions **IN** .00005”; .0001”; .0005”; .001”
**mm** .001mm; .002mm; .01mm; .02mm

Resolution can only be changed to a coarser resolution than the base indicator as purchased.
**MODE (INC, PRESET, TIR)**

**PRESET**  
Change MODE from INC, PRESET, & TIR

a. To Change Indicator MODE: Press & Hold [OFF MODE] The LCD ICONs will change from INC to PRESET to TIR. Release button when PRESET flashes on the LCD.

b. To Program Preset Number: Enter PRESET MODE (step a.). Use the **move (2ND)**, **change (TOL)**, & **apply (HOLD)** to program / set the PRESET value. **move** scrolls flashing icon left to right. **change** toggles the value of the flashing icon. **apply** stores PRESET value.

**TIR (Total Indicator Reading)**  
Difference between the MAX (peak) & MIN (valley) value
Change MODE from INC, PRESET, & TIR

a. To Change Indicator MODE: Press & Hold [OFF MODE]. The LCD ICONs will change from INC to PRESET to TIR. Release button when the TIR flashes on the LCD.

b. To view the MAX (peak) & the MIN (valley) Value: Press & Hold [HOLD] until the desired value is flashing & release button. In TIR MODE, the freeze (FRZ) is the only function available.

c. To zero (clear) TIR value: Press & Release [ON ZERO].

**INC (Incremental)**  
Standard Operating MODE
a. To Change indicator mode: Press & Hold [OFF MODE] until INC flashes on LCD
3rd BUTTON FUNCTIONS

Analog Display
- Allows for ticks or graduation scale view at top of LCD
- Graduation distance matches the selected resolution of the numeric display
  a. To Disable / Enable Analog Display
     1. Press & Release 2ND
     2. Press & Release ON ZERO
     3. Press & Release INmm

Lock
- Locks Buttons/Functions/Settings. 3 Button Push can disable / enable Lock. 3 Digit Lock Combination can be entered for additional security.
  a. To Enable / Disable Lock
     1. Press & Release 2ND
     2. Press & Release ON ZERO
     3. Press & Release TOL A Lock Icon appears on LCD
  b. To Program Lock Combination
     1. Press & Release 2ND
     2. Press & Release ON ZERO
     3. Press & Hold TOL until 000 appears & SET is flashing
     Use the move (2ND), change (TOL), & apply (HOLD) to program 3 digit combination.
     move scrolls flashing icon from left to right. change toggles the value of the flashing icon. apply enters 3 digit combination.
     Enable functions you want to use before locking indicator. Example: Using MAX HOLD, Turn the MAX Hold on (MAX appear on LCD) before you lock.
     Lock function will lock out all functions that are not turned on.
     Functions that can’t be locked include OFF, ON, ZERO.
     NOTE: Master Combination 285 (if combination is lost)

Ratio
- Program a Ratio
  a. To Enable / Disable Ratio:
     1. Press & Release 2ND
     2. Press & Release ON ZERO
     3. Press & Release OFF MODE RATIO will appear on LCD.
  b. To Program RATIO : Enable Ratio (step a.). Use the move (2ND), change (TOL), & apply (HOLD) to program/enter RATIO value.
     move scrolls the flashing icon from left to right. change toggles the value of the flashing icon. apply stores/enters the PRESET value.
  c. To Change Ratio if Already Programmed
     1. Press & Release 2ND
     2. Press & Release ON ZERO
     3. Press & Hold OFF MODE until first icon is flashing. Use move, change, apply to reprogram (see step b. above)
Single Indicator Software

* Easy to Read Display on PC
* Manual Log Data – Single Mouse Click
* Auto Log Data – Timed Logging
* View Data Log Readings – Data Saved as a CSV File
* Program Gage from PC – Can program your indicators features from your PC and load on to the indicator

1 Ratio, 1 Preset, Tolerances (high & low),
Lock Code – 0-21 alpha-numeric characters (leaving blank will work), Resolution, Units (in / mm),
Travel Direction, Mode (TIR, INC, ABS),
Hold function (Min/ Max/ Frz)

* Analog Bar on PC
* Download Log Readings / Stored Readings from Indicator – Most Indicator Models can store up to 200 measurements and be downloaded into View Data Log Readings
* Clear / Zero Indicator

<table>
<thead>
<tr>
<th>Time</th>
<th>Measurement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/23/2017 1:42:00 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:01 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:02 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:03 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:04 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:05 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:06 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:07 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:08 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:10 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:11 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:12 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
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<td>7/23/2017 1:42:13 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:14 AM</td>
<td>0.00005</td>
<td>IN</td>
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<tr>
<td>7/23/2017 1:42:15 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:16 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:17 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
<tr>
<td>7/23/2017 1:42:18 AM</td>
<td>0.00005</td>
<td>IN</td>
</tr>
</tbody>
</table>
CALC Software (includes USB cable)

Measurement Formulas and Lookup Table

Formulas: Choose from the 8 formulas to program the indicator

Lookup Table: Use a customizable lookup table to program up to 127 points for calibrating an indicator to a fixture, or program a non-linear equation.

Select Measurement Type

![Diagram of measurement formulas and lookup table]
• Avoid dust, dirt, lateral forces & shock
• Wipe spindle with a cloth & alcohol
• Use rigid & precise holders
• Make sure contact point is tight
## Specifications

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>.250“ / 6mm</th>
<th>.600“ / 15mm</th>
<th>1.00“ / 25 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max error (.000050“ / .001mm Resolution)</td>
<td>.00012“ / .003mm</td>
<td>.00012“ / .003mm</td>
<td>.00012“ / .003mm</td>
</tr>
<tr>
<td>Max error (.0001“ / .002mm Resolution)</td>
<td>.0002“ / .004mm</td>
<td>.0002“ / .004mm</td>
<td>.0002“ / .004mm</td>
</tr>
<tr>
<td>Repeatability</td>
<td>.000050“ / .0012mm</td>
<td>.000050“ / .0012mm</td>
<td>.001“ / .002mm</td>
</tr>
<tr>
<td>Weight</td>
<td>.41lb (.18kg)</td>
<td>.41lb (.18kg)</td>
<td>.41lb (.18kg)</td>
</tr>
<tr>
<td>Measurement force</td>
<td>150 gm (1.47N)</td>
<td>150 gm (1.47N)</td>
<td>155 gm (1.52N)</td>
</tr>
<tr>
<td>Power battery</td>
<td>2 x 3V lithium battery CR2450</td>
<td>2 x 3V lithium battery CR2450</td>
<td>2 x 3V lithium battery CR2450</td>
</tr>
<tr>
<td>Data Cable</td>
<td>5V</td>
<td>5V</td>
<td>5V</td>
</tr>
<tr>
<td>Average battery life</td>
<td>6,000 hours (ave. life decreases using TIR, MAX, MIN, Radio, TOL LEDs)</td>
<td>6,000 hours (ave. life decreases using TIR, MAX, MIN, Radio, TOL LEDs)</td>
<td>6,000 hours (ave. life decreases using TIR, MAX, MIN, Radio, TOL LEDs)</td>
</tr>
<tr>
<td>Data output</td>
<td>USB, Digimatic (MTI)</td>
<td>USB, Digimatic (MTI)</td>
<td>USB, Digimatic (MTI)</td>
</tr>
<tr>
<td>Cables</td>
<td>USB, 10 pin Digimatic (MTI), RS232, Pigtail</td>
<td>USB, 10 pin Digimatic (MTI), RS232, Pigtail</td>
<td>USB, 10 pin Digimatic (MTI), RS232, Pigtail</td>
</tr>
<tr>
<td>Wireless built in module (short range)</td>
<td>(Standard) compatible with “Electronic Dial Indicator” App in IOS &amp; Andriod Apps Store</td>
<td>(Standard) compatible with “Electronic Dial Indicator” App in IOS &amp; Andriod Apps Store</td>
<td>(Standard) compatible with “Electronic Dial Indicator” App in IOS &amp; Andriod Apps Store</td>
</tr>
<tr>
<td>Wireless built in module (long range)</td>
<td>(Optional) Microridge Radio compatible with Microridge receivers</td>
<td>(Optional) Microridge Radio compatible with Microridge receivers</td>
<td>(Optional) Microridge Radio compatible with Microridge receivers</td>
</tr>
<tr>
<td>Working temperature (storage)</td>
<td>5°C to 40°C (-10°C to 60°C)</td>
<td>40°F to 105°F (-15°F to 135°F)</td>
<td>40°F to 105°F (-15°F to 135°F)</td>
</tr>
</tbody>
</table>

### Error Codes

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error (Radio Menu)</td>
<td>Wireless radio failure</td>
<td>Contact support if issue persists</td>
</tr>
<tr>
<td>Error 3</td>
<td>Failed to load saved settings</td>
<td>Contact support if issue persists</td>
</tr>
<tr>
<td>Error 4</td>
<td>Value is too large to display</td>
<td>Zero gage or reduce spindle travel</td>
</tr>
<tr>
<td>Error 5</td>
<td>Failed to load factory configuration</td>
<td>Device may not operate correctly, contact support</td>
</tr>
<tr>
<td>Error 10</td>
<td>Incomplete lookup table</td>
<td>Please download new lookup table or disable function</td>
</tr>
</tbody>
</table>
Compliance

**CE & ROHS** The product components have been tested and meet the compliance requirements to the current EU RoHS directives. The indicators have also passed the CE requirements, including EMI and ESD and fulfill the requirements of the CE directive and can bear the CE symbol.

**REACH** Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), EC No. 1907/2006, controls the list of Substances of Very High Concern (SVHC). The product does not use any of these controlled substances or preparations; therefore, does not require registration under REACH. The articles we manufacture do not involve the intentional release of any chemical substances.

**WEEE and WEEE-II** The product components are made of many recyclable materials, which do not contain any restricted hazardous materials. Therefore, please recycle the CDI product when it completes its useful life.

**Prop 65** The products and the materials used in the products have been evaluated for compliance to the State of California Prop 65 requirements and found that there are NO significant risk levels (NSRL) for any of the materials listed on the Prop 65 list of “Chemicals Known to the State to Cause Cancer or Reproductive Toxicity”. No label is required. A list of Prop 65 chemicals that may be found in the products that have no significant risk levels include:

<table>
<thead>
<tr>
<th>Name of contained Substances</th>
<th>CAS-Number</th>
<th>Label Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>no</td>
</tr>
<tr>
<td>Acrylonitrile</td>
<td>107-13-1</td>
<td>no</td>
</tr>
<tr>
<td>Butadiene</td>
<td>106-99-0</td>
<td>no</td>
</tr>
<tr>
<td>Styrene</td>
<td>100-42-5</td>
<td>no</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>no</td>
</tr>
<tr>
<td>Carbon Black</td>
<td>1333-86-4</td>
<td>no</td>
</tr>
</tbody>
</table>
DATA Outputs

Data I/O Connector
The indicator has an 8 pin data I/O connector with several supported communication protocols. These communication protocols can be accessed using a dedicated cable or through custom wiring using the Pigtail cable.

Serial ASCII Command Protocol (USB/RS232/UART)
The gage supports several "serial" interfaces that interact with the device using a human readable ASCII command protocol. This protocol can be accessed over USB as a virtual com (CDC) device, RS232 or TTL level UART. For all hardware implementations, the specifications and command set are identical.

Commands
All Commands are terminated with a new line character <CR>. All commands and the most common settings are listed below. Please see technical manual for more details.

Examples: Enter p013=2 followed by a <CR> to change the display units to MM.

Hardware Specifications

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Print current gage reading</td>
</tr>
<tr>
<td>C</td>
<td>Clear gage</td>
</tr>
<tr>
<td>H</td>
<td>Toggle Hold Mode</td>
</tr>
<tr>
<td>rstERR</td>
<td>Resets errors</td>
</tr>
<tr>
<td>?pXXX</td>
<td>Get the value of configuration parameter &quot;XXX&quot;</td>
</tr>
<tr>
<td>pXXX=&lt;new value&gt;</td>
<td>Set the value of parameter &quot;XXX&quot; to &lt;new value&gt;</td>
</tr>
</tbody>
</table>

RESPONSES

<table>
<thead>
<tr>
<th>Response</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 2.1380, MM</td>
<td>13 character response to print reading</td>
</tr>
<tr>
<td>SUCCESS</td>
<td>Parameter is successfully written to</td>
</tr>
<tr>
<td>NOT FOUND</td>
<td>Parameter Name could not be found</td>
</tr>
<tr>
<td>NO ACCESS</td>
<td>User does not have write access</td>
</tr>
<tr>
<td>OUT OF BOUNDS</td>
<td>New value is not within the allowable range</td>
</tr>
<tr>
<td>NON NUMERIC</td>
<td>New value is not a number</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>DESCRIPTION</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P007</td>
<td>Gage Resolution</td>
<td>1 = .001&quot;, .02mm, 2 = .0005&quot;, .01mm, 3 = .0001&quot;, .002mm, 4 = .00005&quot;, .001mm</td>
</tr>
<tr>
<td>P011</td>
<td>Measurement Mode</td>
<td>0=ABS, 1=TIR, 2=INCR</td>
</tr>
<tr>
<td>P013</td>
<td>Units</td>
<td>1=Inches, 2=Millimeters</td>
</tr>
<tr>
<td>P019</td>
<td>Travel Reverse</td>
<td>0=Normal, 1=Reverse</td>
</tr>
<tr>
<td>P021</td>
<td>Hold On</td>
<td>0=Off, 1=On</td>
</tr>
<tr>
<td>P022</td>
<td>Hold Mode</td>
<td>0=Frz, 1=Min, 2=Max</td>
</tr>
<tr>
<td>P040</td>
<td>Ratio On</td>
<td>0=Off, 1=On</td>
</tr>
<tr>
<td>P063</td>
<td>Suppress Output</td>
<td>0=None, 1=Disable error and status responses</td>
</tr>
</tbody>
</table>
DATA Outputs

Digimatic (MTI) Protocol

The gage supports the Digimatic (MTI) protocol, also commonly referred to as SPC. Digimatic is a 3 wire (REQ, DATA, CLK) communication protocol that operates at TTL levels and sends gage measurements in a 13 digit (52 bit) packet format. The output is compatible with most data collection devices supporting the Digimatic protocol including the Electronic Measuring System.

Packet Timing

<table>
<thead>
<tr>
<th>Maximum Request Rate</th>
<th>10 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Clock Frequency</td>
<td>1,250 Hz</td>
</tr>
</tbody>
</table>

Wireless Communication

The CORE & VRS indicators have two wireless communication options available.

Shortrange Smartphone Interface

The gage supports communication using a shortrange wireless radio compatible with most major smartphones. Using the free Android and iOS apps, a user can perform the following actions:

- Connect to 7 devices
- View measurements in analog and digital formats
- Record measurements and share via email
- Change settings

The smartphone interface can also be provided for use in custom application. Users should contact support for more details.

MicroRidge

The gage may include a longer range RM2.4 MicroRidge radio module. This allows the gage to be integrated into the complete MicroRidge ecosystem. The radio supports transmission of measurements at up to 5 Hz and can be received using one of the MicroRidge base receivers (USB, RS232, Wedge)

Contact MicroRidge or visit microridge.com for further details on their wireless system
Wireless Communication

Radio Menu
Allows for enabling of the radio interface as well as control over the measurement update rate

<table>
<thead>
<tr>
<th>VRS</th>
<th>CORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. To Enter Radio Menu</td>
<td>a. To Enter Radio Menu</td>
</tr>
<tr>
<td>1. Press &amp; Release 2ND</td>
<td>1. Press &amp; Hold DATA</td>
</tr>
<tr>
<td>2. Press &amp; Hold HOLD</td>
<td>2. You will see radio displayed</td>
</tr>
<tr>
<td>3. You will see radio displayed</td>
<td>b. To Exit Radio Menu</td>
</tr>
<tr>
<td>b. To Exit Radio Menu</td>
<td>1. Press &amp; Release ON ZERO or OFF MODE</td>
</tr>
<tr>
<td>1. Press &amp; Release ON ZERO or OFF MODE</td>
<td></td>
</tr>
</tbody>
</table>

Enable Radio / Set Update Rate (off, 0, 0.5, 1, 5)
The update rate is how often the measurement is transmitted over wireless in Hz
Off - will disable the ratio
0 - will disable automatic transmission (only sent with DATA button)
0.5 Hz - update every 2 seconds
1 Hz - update every second
5 Hz - update 5 times/sec

<table>
<thead>
<tr>
<th>VRS</th>
<th>CORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Press &amp; Release +/- to cycle</td>
<td>1. Press &amp; Release +/- to cycle</td>
</tr>
<tr>
<td>2. Press &amp; Release on DATA to enter (or wait 5 sec)</td>
<td>2. Press &amp; Release on DATA to enter (or wait 5 sec)</td>
</tr>
<tr>
<td>b. Disable Radio</td>
<td>b. Disable Radio</td>
</tr>
<tr>
<td>1. Repeat steps above and select off</td>
<td>1. Repeat steps above and select off</td>
</tr>
</tbody>
</table>

Pairing (*MicroRidge Only)
MicroRidge receivers require devices to be paired before use. Please refer to the documentation of your receiver for the correct process.
When instructed to send the pair command:
1. Ensure you are in the radio menu (radio displayed on gage) and the radio is enabled
2. Press & Release ON mm
3. You will see pair displayed momentarily

Wireless Icon
The wireless icon will indicate the state of the radio
Off – Radio is disabled
Blinking – Indicates the radio is enabled and not connected to a device
(*Smartphones only)
Solid – Radio is enabled and connected
Smart Phone Application

The smartphone app has 3 primary screens accessible from the bottom navigation bar

**Measurement**

Allows viewing of measurements for connected gages

- **Manual** – Logs a single measurement
- **Auto** – Continuously records measurements at the configured rate

The buttons in the title bar provide equivalent functionality for all connected devices

To adjust settings and issue commands, tap anywhere on the gage tile and you will be taken to the Gage Configuration for that device

**Logs**

Allows viewing and sharing of recorded measurements

Tap the graph or table icons to view data

Check the box to enable sharing data via email or other apps

Log files will be created automatically each day. To create a new file within a given day, press the (+) button

To delete files, swipe left

**Scan**

Allows scanning for available gages and connecting to them

Ensure your devices radio is enabled and the wireless icon is blinking prior to scanning

To delete a device, swipe left

**Help**

Additional help information can be found in the upper right overflow menu