

MilliCheck Comparator Instruments



High resolution dial type analog display

Four decade digital display

User selectable scale ranges

Design for shop floor environment

Operates on batteries or external power

Models for:

Single master type air gages

Dual master type air gages

LVDT gaging cartridges

MilliCheck Comparator Instruments . . .



AEC-30-10 with dual master type air probes

MilliCheck Comparator Instruments replace dial type pneumatic comparator instruments. These next generation instruments feature high resolution, circular LCD bargraphs, along with four decade digital displays. They include user selectable scale ranges in English or Metric units, tolerance zone markers, and Hi / Lo air pressure annicators. -- *specifications on the next page.*

Battery or external power . . .

MilliCheck instruments can be operated from internal batteries, or directly from external AC power sources. Utilizing the instruments 4 standard "D" cells, the user can expect a nominal battery life of 3 to 4 months, based on a standard 8-hour workday, 5 days per week. Operation with 120 or 250 AC power sources use a plug-in adapters furnished with the instrument.

Designed for the shop floor use . . .

Rugged, .125" thick aluminum housing with membrane sealed front panels provides for reliable performance in machine shops as well as metrology labs. Air Gage models include an internal high precision pressure regulator and rear panel filter. (Additional up stream filtering is recommended for production installations.)

Single or Dual Master air gage members. . .

These new instrument models provide the capability to operate either single master or dual master types of air gage members. Sealed membrane Arrow Buttons provide a convenient and reliable means to set the Min-Max span for dual mastered gages. Scale factors for single mastered gages are factory set; and only the Zero Buttons are active.

Electronic Gaging Cartridges . . . for applications where contact gaging in preferred, the **MilliCheck** instruments can be configured to operate one or two LVDT type electronic gaging cartridges. The factory installed LVDT gaging module provide "Channel A only", "Channel B Only", "Ch A - Ch B" and "Ch A + Ch B" modes.

MilliCheck Order Codes:

AEC - (XX) - (XX)

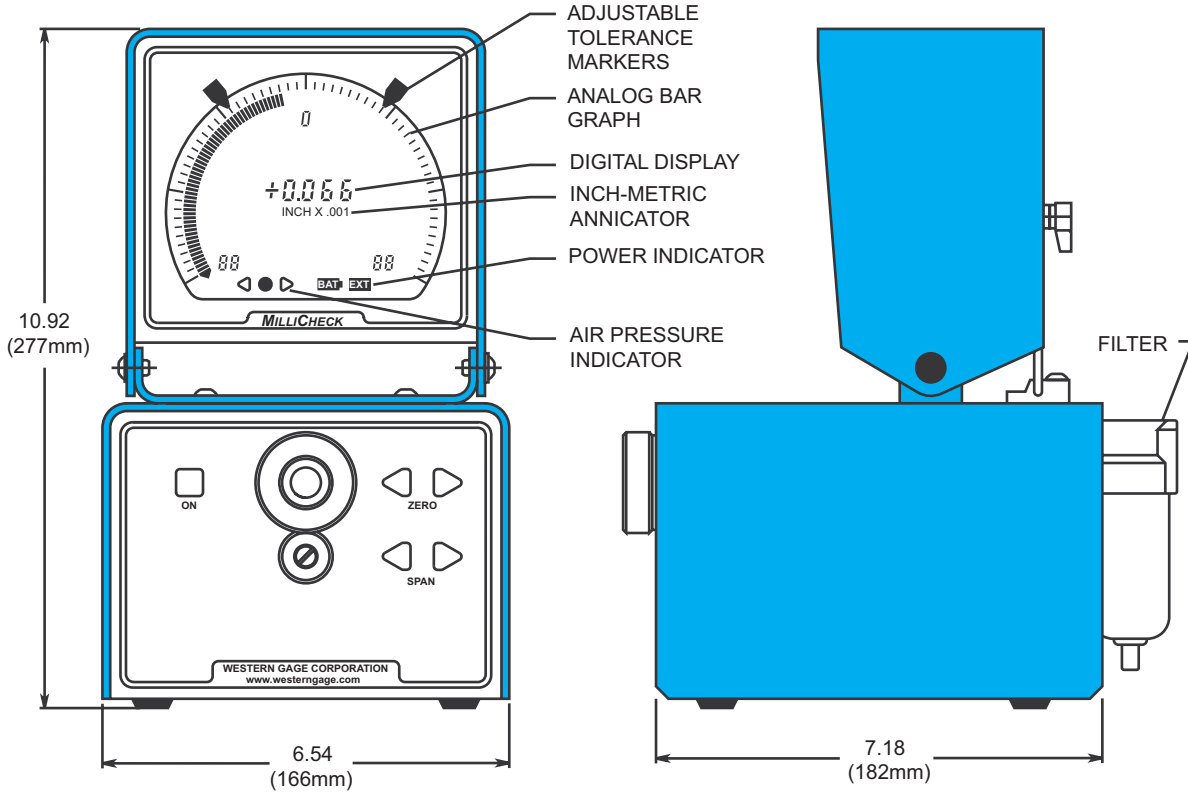
Model No. - External Power	/	-	Gaging Member Type -
(30) - 110/125 VAC			See below
(31) - 220/250 VAC			



AEC-30-E2 with VeeCheck O.D. Gage

- AEC 30* - 10** All Dual Mastered Air Gages, Series 10
 - AEC 30* - 60** Single Master Air Gages, Series 60
 - AEC 30* - 70** Single Master Air Gages, Series 70
 - AEC 30* - 80** Single Master Air Gages, Series 80
 - AEC 30* - E2** LVDT Gaging Cartridges, Hi Gain, Ch A+Ch B
 - AEC 30* - E5** LVDT Gaging Cartridges, Std.Gain, Ch A+Ch B
- * Change code to 31 for 220/250 VAC applications

MilliCheck Specifications . . .



Bargraph Display: 121 Segment LCD

Digital Display: 4 Decade LCD

Controls, Front Panel:

- Zero Adjust -- sealed Arrow Button switch
- Span (magnification) -- sealed Arrow Button
- Tolerance Markers -- Mechanical slide

Controls, Rear Panel Slide Switches:

- Scale Selector - *Any scale listed at the right is selectable*
- Inch or Metric selection
- Operator front panel lockout
- Auto on-off time
- Input polarity

Gage Input Module (select one):

- Air Gage, Single Master (Series 60, 70 or 80)
- Air Gage, Dual Master (Series 10)
- LVDT Input, High gain (E1, E2, E3)
- LVDT Input, Low gain (E4, E5, E6)

Power:

- Internal Battery:** 4 "D" cells
- External:** 9 VDC
(110/125 or 220 VAC Adapter included)

Air: 40 - 125 psi, 2 CFM (max)

Weight: 10 Lbs (4.5 Kg)

MilliCheck scales -- inches

Range Setting	Magnification	Analog Resolution	Digital Resolution
± .00015	30000	.000003	.000002
± .00030	15000	.000005	.000005
± .00075	6000	.000013	.00001
± .0015	3000	.000025	.00002
± .003	1500	.00005	.00005
± .006	750	.00010	.00005
± .015	300	.00025	.0001
± .030	150	.0005	.0001

MilliCheck scales -- millimeters

Range Setting	Magnification	Analog Resolution	Digital Resolution
± .003	37500	.00005	.00005
± .006	18750	.00010	.0001
± .015	7500	.00025	.0002
± .030	3750	.0005	.0005
± .060	1875	.0010	.0010
± .150	750	.0025	.002
± .300	375	.005	.002
± .600	188	.010	.002

MICRO IIi Air Gage Readout

Advanced features . . .

- Ruggedized Microcontroller
- Operates all types of air gage members and LVDT sensors
- Out-of-tolerance conditions flagged red
- CE Compliant
- Backlit LCD display
- Auto calibration using one or two setting masters
- Wrap-a-round bargraph
- RS-232 & USB Serial Data Ports



Applications . . .

- Precise measurement of Internal & External Diameters
- Match fitting mating components
- I.D. straightness measurement
- Inspection of Internal & External Tapers
- Flatness inspection
- Custom multi-feature fixtures

Micro IIi Features . . .

Single or Dual master operation

Readouts for single master operation are calibrated using master standards prior to shipment; the only adjustment required before gaging parts is that the user "zeroes" the Readout with a nominal setting master. Dual mastered Readouts are calibrated by the operator using minimum and maximum setting masters. Western's series 60, 70 and 80 air gage members are designed specifically for single setting master operation, while series 10 air gage members are for use with dual mastered Readouts.

Auto-Zero (single master operation)

The **MICRO IIi** Auto-Zero feature makes set-up a snap. The user enters the nominal master size once during set-up. Subsequently, the Readout is zeroed by placing the setting master on the air gage member, then pressing the center key on the front panel.

Auto-Span (dual master operation)

The **MICRO IIi** Auto-Span feature facilitates calibration using two setting masters. After entering master sizes during set-up, the user calibrates the Readout by sequentially placing the masters on the air gage member, then pressing the center key.

Digital display

A seven digit backlit LCD type display shows the actual part size. Master size and Hi / Lo limits are entered with front panel keys. Out-of-tolerance conditions are flagged by changing the display color from green to red (see example on opposite page). Digital resolutions down to 2 μ-inches or .05 micron are available for close tolerance applications.

Bargraph display -- range selection

In addition to the digital display, an 81-segment bargraph is incorporated into the **MICRO IIi**. Using the values inputted for size limits, the span between tolerance markers is automatically set. An expanded range mode, Gage 2X, is also available for viewing oversize workpieces.

Serial digital output

Standard to all Readouts are the RS-232 and USB serial data ports, providing convenient interface with Western's printer and most computers and S.P.C. software.

TIR function

Press the "TIR" button and the "Total Indicator Recording" mode is started. The **MICRO IIi** begins storing the minimum and maximum gage readings. Press the button again and min-max difference (TIR) is displayed. Feature is standard on single channel units only.

MICRO IIi SPECIFICATIONS

Model AEQ 42

ORDER CODE:

AEQ42(x)-xx-xx

MODEL No. POWER CORD No. OF DISPLAYS SERIES No. OF INPUTS

3.0" (76mm)
PER DISPLAY

11.0"
(279mm)

6.5"
(165mm)

8.5"
(216mm)

DIGITAL DISPLAY: 7 Digit LCD type
BAR GRAPH: 81 segment LCD type

OUTPUTS:
Serial digital: RS 232 & USB port
High/Low Limit: +5v, .5ma (Ch. 1 Only)

MULTI-CHANNEL DISPLAY OPTIONS:
Custom programming of display outputs - A-B, A+B, A-C, etc.. Consult factory.

POWER: 100-240 VAC 50-60 HZ
100 mA (MAX)

AIR: 40 to 120 psi,
2 CFM per channel (MAX)

WEIGHT: AEQ 42-11-()... 12#
Additional Display... 2# ea.

MICRO IIi Multi-Channel Applications

Configured with dual inputs, the *MICRO IIi* is the ideal instrument for match fitting components such as hydraulic valve spools to sleeves, fuel injector plungers to cylinders, and air bearing sleeves to shafts. Connected to a set of Western's air probes



MICRO IIi Model AEQ 42-32N-60

and air ring gages, the *MICRO IIi* displays I.D. size, O.D. size and the clearance between the mating parts at digital resolutions down to 2 micro-inches or .05 microns.



MICRO IIi
Model AEQ 42-22-10

Configured with three input channels and connected to a Western Gage custom air taper gage, the *MICRO IIi* is unsurpassed for fast and reliable inspection of internal and external tapers. The display shows front, middle and back deviations from true taper in products such as machine tools, medical implants, flywheel and pulley parts.



MICRO IIi
Model AEQ 42-33M-60
with #40 machine tool

Rapid inspection of parts is facilitated by displaying "out-of-tolerance" conditions in red. Using a highly visible bargraph display, the *MICRO IIi* shows the position of each feature relative to its product specification.



MICRO IIi