Digital Benchtop Meter DR601

CE **user guide**

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User Guide: Contents

Using this manual

The Digital Readout functions are covered in two sections:

<div align="center">

Operation mode

Setup mode

</div>

"Operation mode" shows you how to use the functions which are immediately available to you without the need to first set them up.

"Setup mode" shows you how to use the functions which are accessed in setup mode or which must first be configured using Setup mode.

The following symbols are adopted in this manual:

●   indicates that the lamp is "on"

☀   indicates that a lamp is flashing
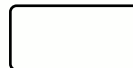
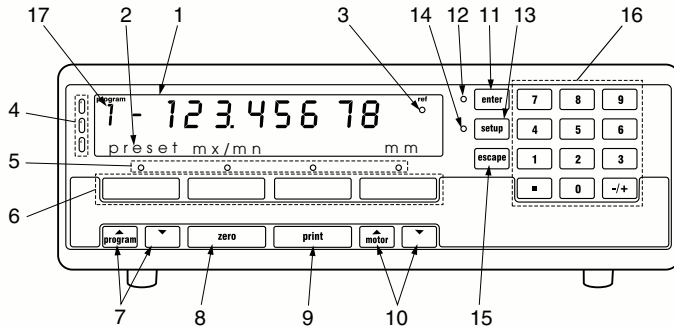represents a key which performs a specific action

e.g.   **enter**

represents a "soft key"

e.g   **preset**

Layout of controls

1. Numeric display — shows readings.
2. Information display — shows user information and soft key legends.
3. Reference lamp — on when in reference mode.
4. Range lamps — top: out of tolerance high.
   middle: within tolerance.
   bottom: out of tolerance low.
5. Soft key lamps — lit only when the function is available.
6. Soft keys — perform the function shown on the information display.

7. Program keys — increment or decrement program number (1-9).
8. Zero key — zeros the numeric display.
9. Print key — sends the information on the numeric display to a printer or PC.
10. Motor keys — positions the tip of the Linear Encoder (drive version only)
11. Enter key — completes number entry and moves to the next selection.
12. Enter lamp — flashes, prompting you to press the enter key.
13. Setup key — selects the setup menu.
14. Setup lamp — lamp is on when in setup mode.
15. Escape key — aborts number entry and takes you back to the previous selection.
16. Numeric keys — to enter numeric information.
17. Program number display — shows number selected by program keys.

Getting started: Factory settings

1. Connect the probe (Linear Encoder or Digital Probe) (see Digital Benchtop Meter Installation Manual).

2. Switch the power ON.

3. The Digital Readout will run through a start-up routine. If the readout has not been connected to the probe before, you will see the following display:

> move probe tip   *

Move the probe tip and the display will change to the following:

> press zero to continue

Press the 'zero' key and the display will change to the following.

> 0.0000
> preset   mx/mn   mm
>   ●   ●   ●

The system is now ready to start measuring.

Note: To establish the actual position within the stroke of a Digital Probe, press "escape" in place of "zero" in the above sequence.

General

There are two modes of use 'Operation' and 'Setup'. The Digital Readout will always be in the 'Operation' mode following power-up.

In 'Operation' mode the setup lamp is OFF.
In 'Setup' mode the setup lamp is ON.

To enter Setup mode.
First make sure that you are at the main
'operation' menu
(if not press escape key until you are).

```
              88.8888
preset mx/mn              mm
    •       •           •
```

Then press 'setup'.

setup

```
preset   limit   probe   more
    •       •       •       •
```

To enter operation mode
(main operation menu)
Press 'setup'.

• **setup**

```
              88.8888
preset mx/mn              mm
    •       •           •
```

Note: These are the factory defaults. To show or hide operation menus refer to 'show' menu in Setup mode.

General: continued

soft keys

Up to 4 menu items can be displayed at any one time. When the lamp above a key is lit it indicates that the function is available.
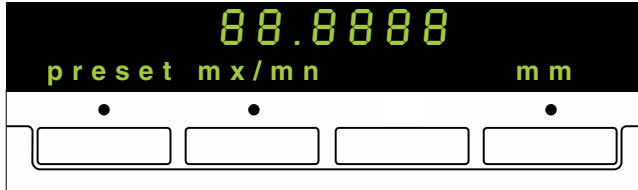
Pressing the soft key results in an action taking place.

enter key

Used to:

- save numbers keyed in.
- save settings after they have changed.
- move to the next step in a menu sequence.

Enter lamp flashes prompting you to press enter key.

escape key

Used to:

> revert to previous number entered or previous step in a menu sequence without saving changes.

setup key

Switches between Operation & Setup mode.

Note: Escape from preset, mx/mn or scan menus to main operation menu before pressing setup key.

In Setup mode.

setup key can be pressed at any stage to revert to Operation mode (ensure you press enter first to save current change).

General: continued

Programs

There are 10 programs allowing you to store up to 10 presets and 10 sets of limits. These can be used with a single probe (Linear Encoder or Digital Probe) or pair of probes for A+B or A-B measurements.

Alternatively each program can have a different probe (or probe pair) assigned to it, allowing up to 10 probes, (or probe pairs), to be connected to the Digital Readout. Each probe, (or probe pair), may have its own preset and limits. The program selected determines which probe has its reading displayed.

The **program** ▲ and ▼ keys are used to select the program. When the Digital Readout is switched on it automatically goes into the standard program for which there is no number displayed. The other 9 programs are numbered 1 to 9.
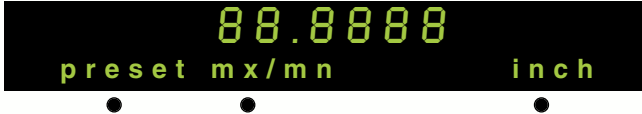
When moving from the Operation mode to the Setup mode and vice versa the Digital Readout reverts to the *standard program*.

Some of the setup menus are only available in the *standard program*, as the settings for these apply to the whole instrument and are not specific to individual programs.

For each program the resolution, direction and reference menus apply to the probe that is being used. If the same probe is used in more than one program these parameters can be changed on any of the programs which use this probe.

In addition to moving to the next or previous program, the ▲ **program** and ▼ keys behave like the enter key, saving a number or setting after it has been changed. This allows you to change a setting in one program and move to the next with one key press.
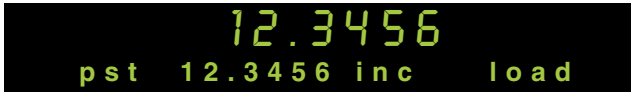
Operation mode: Zero & mm/inch

Operation	Key stroke	Display
To zero the numeric display and establish an absolute datum. Press zero.	**zero**	`0.0000` preset mx/mn • • mm •
To Change between inches and mm proceed as follows.		
To select inch. Toggle to inch.	**mm** •	`88.8888` preset mx/mn inch • • •
To select mm. Toggle to mm.	**inch** •	`88.8888` preset mx/mn mm • • •

Operation mode: Preset

(Allows you to key in and load a preset in the standard program and switch between absolute and incremental datum)

To key in and load a preset proceed as follows:
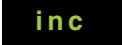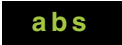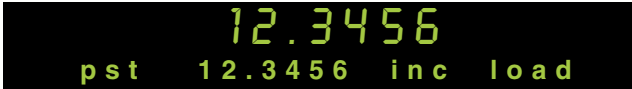
Operation	Key stroke	Display
To select preset. Press preset.	preset	88.8888 pst ▌.▌▌▌▌ abs load
To key in a preset. (eg. 12.3456).	use numeric keys	pst 12.3456 del
To save preset. Press enter.	enter	88.8888 pst 12.3456 abs load
To load preset into numeric display and establish preset datum (inc).	load	12.3456 pst 12.3456 inc load

Notes

1. 'inc' signifies that the Digital Readout is in the incremental mode and relates to the preset datum.

2. 'del' deletes the last character in the number entry.

3. Ensure you have the direction of count set correctly (see Setup dir menu).
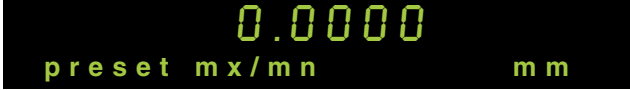
Operation mode: Preset (continued)

To switch between absolute and incremental datum.

Operation	Key stroke	Display
To switch to absolute datum. Toggle to abs.	inc ●	`88.8888` p s t 1 2 . 3 4 5 6 a b s l o a d
To switch to incremental datum. Toggle back to inc.	abs ●	`12.3456` p s t 1 2 . 3 4 5 6 i n c l o a d
To return to main operation menu.	escape	

Operation mode: Preset (continued)

Operation mode: Maximum/Minimum

To use maximum/minimum with zero and preset datum proceed as follows:

Operation	Key stroke	Display
To establish zero datum. press zero. or	**zero**	0.0000 p r e s e t m x / m n m m
To establish preset datum . (e.g. 28.000) key in and load preset using preset routine. Then escape.		28.0000 p r e s e t m x / m n m m
To select max/min. Press mx/mn.	**mx/mn**	88.8888 a c t u a l r e s e t l o a d
To clear the register. **IMPORTANT:** Do not press the reset key until you are ready to start taking readings.	**reset**	88.8888 a c t u a l r e s e t l o a d

Operation mode: Maximum/Minimum (continued)

Operation	Key stroke	Display
To view maximum toggle to maximum.	**actual**	`88.8888` maximum
To view minimum toggle to minimum.	**maximum**	`88.8888` minimum
To view difference toggle to difference.	**minimum**	`88.8888` difference
To get ready for next test toggle to actual.	**difference**	`88.8888` actual reset load

Note:

To confirm zero datum press 'zero' key when 'actual' lamp is lit.

or

To confirm preset datum press 'load' when 'actual' lamp is lit.
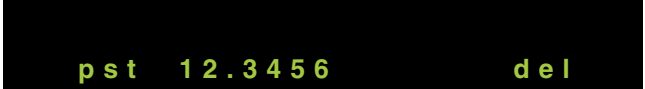
To return to main Operation menu.   escape

Operation mode: Maximum/Minimum ——— 12 ———

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Setup mode: Menus

Workshop setup

preset	limit	probe	more

Probe related setup

x.xxx	dir	ref	more

Configuration

show	units	prog	more

Inputs & outputs

print	RS232	ext	more

Security & default

lock	pass_wd	default

preset	limits	probes	resolution	direction	reference	show	units	program	print	RS232	external	lock	password	defaults

all programs

system setup (standard program only)

Setup mode: Preset

(Allows you to store presets for each of the ten programs and to copy and store presets from master components).

To store a preset in the standard program proceed as follows:

Operation	Key stroke	Display
To select preset menu in Setup mode.	**setup** **preset** •	88.8888 p s t ▮.▮▮▮▮ c o p y
To key in preset (e.g. 12.3456).	use numeric keys	p s t 1 2 . 3 4 5 6 d e l
To store preset and return to Operation mode.	**enter** • **setup**	

Notes: 1. To load preset into numeric display and establish preset datum go to Operation mode preset or max/min menu and press load key.

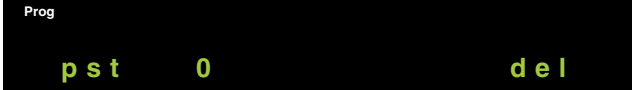2. To enter and store presets for programs 1 to 9 select required program number using **program▲** or **▼** keys and repeat above procedure.
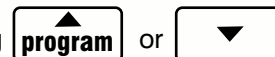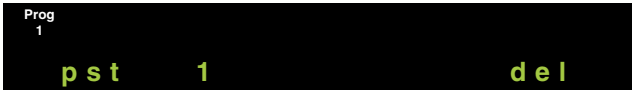
Setup mode: Preset (continued)

To copy a preset from a master component proceed as follows:

Operation	Key stroke	Display
To select preset menu in Setup mode.	**setup** **preset** ●	88.8888 p s t █.████ c o p y ●
Establish datum press zero.	**zero**	0.0000 p s t █.████ c o p y ●
Measure part (e.g. 1.010).		1.010 p s t █.████ c o p y ●
To copy reading to preset.	**copy** ●	1.010 p s t 1.010
To store a preset and return to Operation menu.	**enter** ● **setup**	

Setup mode: Preset (continued)

To store and use presets for up to 10 programs with one probe (or pair of probes e.g. A+B) and one datum.

Operation	Key stroke	Display
To select preset menu in Setup mode.	setup **preset** ●	Prog 88.8888 p s t ▮.▮▮▮▮ c o p y ●
To key in preset (e.g. 0) for standard program.	use numeric keys	Prog p s t 0 d e l ●
To store preset and move to program 1.	▲ program	Prog 1 88.8888 p s t ▮.▮▮▮▮ c o p y ●
To key in preset (e.g. 1) for program 1.	use numeric keys	Prog 1 p s t 1 d e l ●
To store preset and move to program 2. Continue as above for remaining programs.	▲ program	Prog 2 88.8888 p s t ▮.▮▮▮▮ c o p y ●

Setup mode: Preset (continued)

Operation	Key stroke	Display
To view presets in Operation mode.		
To return to Operation mode preset press setup and preset.	setup　preset	
Display shows preset value stored in the standard program.		**Prog** `88.8888` `pst  0.0000  abs    load`
To view program 1 preset.	program	**Prog 1** `88.8888` `pst  1.0000  abs    load`
To view program 2 preset.	program	**Prog 2** `88.8888` `pst  ▮.▮▮▮▮  abs    load`
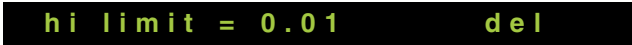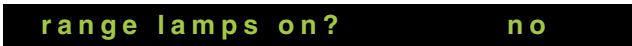
Setup mode: Preset (continued)

Operation	Key stroke	Display
To load a preset and establish preset datum		
Select standard program.	▲ program or ▼	**Prog** 88.8888 p s t 0.0000 a b s l o a d
Press load key.	load	**Prog** 0.0000 p s t 0.0000 i n c l o a d
To view preset 1 and reading with respect to preset datum.	▲ program	**Prog 1** 1.0000 p s t 1.0000 i n c l o a d
To view other presets and readings with respect to preset datum.	▲ program or ▼	**Prog** 88.8888 p s t █.████ i n c l o a d
To return to main Operation menu.	escape	

Setup mode: Preset (continued) ⬤18

Setup mode: Limits
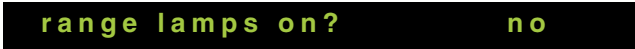
(Allows you to store limits to control the range lamps for each of the 10 programs. Upper and lower limits may be entered directly or by keying in the the nominal plus high and low tolerances. Limits may be copied from master components and range lamps can be enabled or inhibited).
To store upper and lower limits and control whether range lamps are enabled or inhibited.

Operation	Key stroke	Display
To select limits menu.	**setup** **limit**	**limit nom+tol mx/mn**
To enter upper and lower limits choose limit option.	**limit**	**88.8888** **hi limit = █.████ copy**
To enter upper limit (e.g. 0.01).	use numeric keys	**hi limit = 0.01 del**
To store upper limit.	**enter**	**88.8888** **lo limit = █.████ copy**
To enter and store lower limit (e.g. -0.01).	use numeric keys **enter**	**range lamps on? no**

Setup mode: Limits

Setup mode: Limits (continued)

Operation	Key stroke	Display
To turn range lamps on, toggle to "yes" or To turn range lamps off toggle to "no".	**no** ●	**range lamps on? yes** ●
	yes ●	**range lamps on? no** ●
To complete press enter.	☀ **enter**	**preset limit probe more** ● ● ● ●
To enter and store limits for programs 1 to 9, select program number and repeat above procedure.	**program ▲** or **▼**	
To return to operating mode.	● **setup**	

Setup mode: Limits (continued)
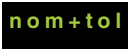
To enter and store limits for the standard program using nominal and tolerance.

Operation	Key stroke	Display
To select nominal and tolerance method of entering limits.	**setup** **limit** ● **nom+tol** ●	88.8888 n o m i n a l = ▌.▐▐▐▐ c o p y ●
Enter nominal, then proceed as instructed.		

Setup mode: Limits (continued)
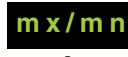
To copy the nominal from a master component.

Operation	Key stroke	Display
Select nominal + tolerance.	**setup** **limit** **nom+tol**	*88.8888* nominal = ▮.▮▮▮▮ copy
Establish datum and press zero.	**zero**	*0.0000* nominal = ▮.▮▮▮▮ copy
Measure part (e.g. 1.010).		*1.0100* nominal = ▮.▮▮▮▮ copy
To copy reading to nominal.	**copy**	*1.0100* nominal = 1.0100
To save nominal.	**enter**	hi tol = ▮.▮▮▮▮
Proceed as instructed.		

Setup mode: Limits (continued)

To store upper, lower and difference limits for use in maximum/minimum Operation menu.

Operation	Key stroke	Display
To select maximum/ minimum/difference limits.	**setup** **limit** ● **mx/mn** ●	*88.8888* hi limit = █.████ copy ●
To enter upper limit (e.g. 0.01).	use numeric keys	hi limit = 0.01 del ●
To store upper limit.	**enter**	*88.8888* lo limit = █.████ copy ●
To enter and store lower limit (e.g. -0.01).	use numeric keys **enter**	diff lmt = █.████
To enter and store difference limit (e.g. 0.015). Proceed as instructed.	use numeric keys **enter**	range lamps on? no ●

Setup mode: Probes

(Allows you to set up individual probes, pairs of probes (A + B or A - B); to assign probes to programs and to set up a group of probes that can be scanned).

To select individual probe, A+B, A-B, or scan.

Operation	Key stroke	Display
To select probe menu.	setup probe	use: individual probe
To set up a single probe toggle through choices to 'individual probe'.	scan	use: individual probe
To set up 2 probes in an A + B configuration toggle to 'A + B'.	individual probe	use: A + B
To set up 2 probes in an A - B configuration toggle to 'A - B'.	A+B	use: A - B
To setup, up to 30 probes to be scanned toggle to "scan".	A-B	use: scan

Setup mode: Probes (continued)

To install a new probe for use with all programs.

Operation	Key stroke	Display
Select 'individual probe' as previous page.		`use :        individual    probe` ●
To identify current probe.	enter	`88.8888` `ID= ████████████   new` ●
To specify a new probe, select "new".	new ● **move probe tip**	`move  probe  tip              *` `copy  to  all  progs        no` ●
To use this probe with all programs toggle to "yes" **Note:**- This option is only available in the standard program.	no ●	`copy  to  all  progs       yes` ●
To complete.	enter ● setup	

Note: Procedure for A+B and A-B configurations is similar to the above.

Setup mode: Probes (continued)

To install different probes for use in each program.

Operation	Key stroke	Display

To install first probe in standard program proceed as for last section until prompted to press probe tip.

move probe tip

```
Prog

copy  to  all  progs ?        no
                                ●
```

Press enter key (i.e. do not copy to all programs).

☀ [enter]

```
Prog

   preset  limit   probe    more
          ●        ●        ●        ●
```

Select program number 1 to 9 and repeat above procedure.

[▲ program] or [▼]

```
Prog
1

   preset  limit   probe    more
          ●        ●        ●        ●
```
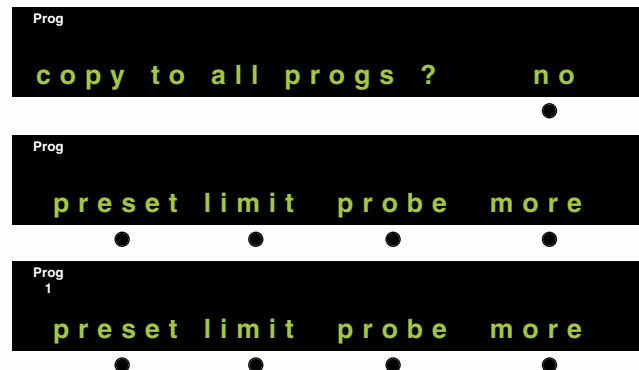
Procedure for A+B and A-B configuration is similar to the above.
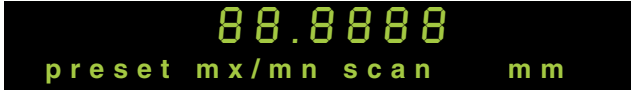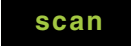
Setup mode: Probes (continued)

To scan through a group of probes.

Operation	Key stroke	Display
Select 'scan' from Probe 'use' choices.		`use :                    scan` ●
To select number of probes to be scanned.	[enter]	`scan probes  :  30`
Select number (e.g. 10).	use numeric keys [enter]	`        88.8888` `I = ■■■■■■■■■     new` ●
Select 'new' and proceed as instructed to select remaining probes.		

Setup mode: Probes (continued)

To use scan in Operation mode.

Operation	Key stroke	Display
To return to Operation mode press setup.	● **setup**	88.8888 preset mx/mn scan mm
To select scan and view probe 1 reading press scan.	**scan** ●	88.8888 scan probe 1
To view probe 2 reading toggle to scan probe 2 or Key in '2' and press enter.	**scan probe 1** ●	88.8888 scan probe 2
	use numeric keys **enter**	88.8888 scan probe 2
To return to main Operation menu.	**escape**	

Setup mode: Probes (continued)

Setup mode: Resolution

To change the displayed resolution for a probe.

Operation	Key stroke	Display
To select resolution menu.	**setup** **more** **X.XXX**	`1.2345` no of digits: less more
To decrease number of full decades displayed.	**less**	`1.234` no of digits: less more
To increase decades displayed.	**more**	`1.234` no of digits: less more
To select resolution of 1, 2 or 5 in the last decade.	**enter**	`1.2345` step size: 1
Toggle to 1, 2 or 5 as required.		
To complete and return to Operation mode.	**enter** • **setup**	

Note: When full resolution of probe has been reached **more** choice will disappear and only valid step sizes will be available.

Setup mode: Direction

To change the direction of count.

Operation	Key stroke	Display
To select direction menu.	**setup** **more** **dir**	`d i r e c t i o n :          r e t r a c t  =  +`
For increasing count as probe extends toggle to 'extend=+'.	`r e t r a c t  =  +`	`d i r e c t i o n :          e x t e n d  =  +`
For increasing count as probe retracts toggle to 'retract=+'.	`e x t e n d  =  +`	`d i r e c t i o n :          r e t r a c t  =  +`
To complete and return to Operation mode.	**enter** **setup**	
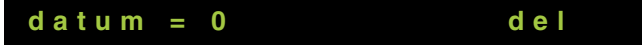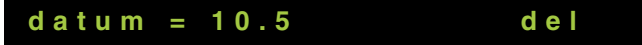
Setup mode: Reference Mark

Uses reference marker on the Linear Encoder to establish reference datum.

Operation	Key stroke	Display
To select reference menu.	**setup** **more** **ref**	`ref mode :` `off`
To turn reference mode on toggle to 'on'. In this mode Linear Encoder tip must be moved so that reference marker is passed each time Readout is powered up.	**off**	`ref mode :` `on`
To select reference datum. Press 'enter' and select 'new'.	**enter** **new**	`set machine datum`
Establish machine datum.		
Press 'enter'.	**enter**	`datum : ▮▮.▮▮▮`

Setup mode: Reference Mark (continued)

Operation	Key stroke	Display
For zero datum key in 0	Key in 0	`datum = 0                del` ●
or		
For a preset datum (eg 10.5) key in 10.5.	Use numeric keys	`datum = 10.5             del` ●
Press 'enter'.	enter	`move thru ref mark`

Move tip until display counts.

Note: Reference lamp is on when in reference mode.

Setup mode: Reference Mark (continued)

To Recall reference mark.

Operation	Key stroke	Display
Recall after power down.		
Power on.		`move thru ref mark`
Move tip until display counts.		
Recall reference mark with unit powered up.		
To select reference menu.	setup more ref	`ref mode :` `on`
Press 'enter' and 'recall'.	enter recall	`move thru ref mark`
Move tip until display counts.		

Setup mode: Reference Mark (continued) — 33 —
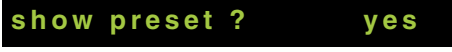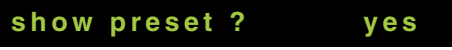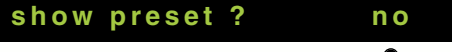
Set up mode: Reference Mark (continued)

To switch off reference mode.

Operation	Key stroke	Display
To select reference menu.	**setup** **more** **ref**	ref mode = on
Toggle to 'off'.	**on**	ref mode = off
To complete and return to Operation mode.	**enter** **setup**	press zero to continue

Setup mode: Show

To show or hide operation menus.

Operation	Key stroke	Display
To select show menu.	**setup** **more** **more** **show**	`show preset ?          yes`
Toggle to 'yes' to show the menu in Operation mode.	**no**	`show preset ?          yes`
Toggle to 'no' to hide the menu.	**yes**	`show preset ?           no`
Press 'enter' to save the change and move onto the next selection.	**enter**	

Proceed as instructed.

Note: To show 'scan' in Operation menu first install probes to be scanned using setup probe menu.

Setup mode: Units

(Allows you to select inches or mm's, to show or hide the units in operation mode and to enable the units shown in operation mode to be changed).

Operation	Key stroke	Display
To select units menu.	**setup** **more** **more** **units**	**unit of measure : mm**
Proceed as instructed.		

Setup mode: External

To freeze display with external signal or RS232 CTRL B character.

Operation	Key stroke	Display
To select external menu.	`setup` `more` `more` `more` `ext`	`freeze:          no freeze`
To freeze on RS232 command toggle to 'RS232'.	`no freeze`	`freeze:            RS232`
To freeze on negative edge of external signal toggle to 'remote neg edge'.	`RS232`	`freeze:      remote neg edge`
To freeze when remote signal is low, toggle to 'remote low'.	`remote neg edge`	`freeze:         remote low`
To switch off freeze facility, toggle to 'no freeze'.	`remote low`	`freeze:          no freeze`
To complete and return to Operation mode.	`enter` • `setup`	

Note: See Digital Benchtop Meter Installation Manual for electrical specification and timing for remote signals.

Setup mode: Print

(Determines what information is sent to a printer or PC when the | **print** | key is pressed or a send measurement command is received on the RS 232 interface, in operation mode).
To configure print options.
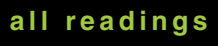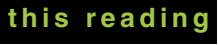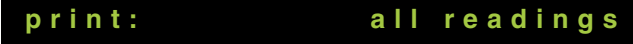
Operation	Key stroke	Display
To select print menu.		
	setup **more** **more** **more** **print**	`blank lines:    0`
To key in number of blank lines on print out e.g. 5.	use numeric keys	`blank lines: 5          del`
Press enter.	**enter**	`print program no.?      no`
To print the program number toggle to 'yes'	**no**	`print program no.?     yes`
or		
To print reading without program number toggle to 'no'.	**yes**	`print program no.?      no`
Press enter.	**enter**	`print:         this reading`

Setup mode: Print (continued)

Operation	Key stroke	Display
To print the current reading only toggle through choices to 'this reading'.	`all readings` ●	`print:          this reading` ●
To print the reading and move onto next selection, toggle through choices to 'reading then step' (see Note 1 on following page).	`this reading` ●	`print:      reading then step` ●
To print all readings toggle through choices to 'all readings' (see Note 2 on following page).	`reading then step` ●	`print:          all readings` ●
To complete & return to Operation mode.	☀ [**enter**] ● [**setup**]	

Setup mode: Print (continued)

Operation	Key stroke	Display

Note1:

When max/min menu is selected in Operation mode displayed reading (e.g. maximum) is printed then next reading (e.g. minimum) is displayed. When 'scan' menu is selected in operation mode displayed reading (e.g. scan 5) is printed then reading for next probe (e.g. scan 6) is displayed.

If max/min or scan are not selected reading for current program (e.g. prog 2) is printed then reading for next program (e.g. prog 3) is displayed.

Note 2:

When max/min menu is selected maximum, minimum and difference readings are all printed.

When scan menu is selected readings for all scanned probes are printed. If max/min and scan are not selected readings for all programs are printed.

Set up mode: RS232 & Program

RS232: To configure RS232 serial port for connection to a printer or PC.

Operation	Key stroke	Display
To select **RS232:** Proceed as instructed.	**setup** **more** **more** **more** **RS232**	**baud rate: 9600**

Program: To select the number of programs required and whether to return to the standard program each time

setup is pressed.

Operation	Key stroke	Display
To select program.	**setup** **more** **more** **prog**	**last program no: 9**
To change number of programs key in last program number e.g. 5 (must be in range 1 to 9).	use numeric keys	**last program no: 5 del**

Set up mode: RS232 & Program (continued)

Operation	Key stroke	Display
To select whether to return to the standard program each time **setup** is pressed	☀ **enter**	**default to std prog? yes**
Select **yes** or **no** as appropriate		
To save settings and return to operation mode.	☀ **enter** **setup**	

Setup mode: Lock

(Allows you to lock individual Operation mode keys and Setup menus. Locked keys and menus may only be accessed when correct password has been entered. Lock, password and default menus are always locked until correct password has been entered).

Operation	Key stroke	Display
To enter password press setup and key in password (factory default is 0000).	**setup** use numeric keys	`password: 0000          del`
press 'enter'.	**enter**	
To select lock menu Select 'yes' for lock to become live when setup key is pressed to go back to Operation mode.	**more** **more** **more** **more** **lock**	`lock active ?          yes`

Set up mode: Lock   43

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Operation	Key stroke	Display
Toggle to 'no' if you wish to move between setup mode and Operation mode without activating locked keys and menus (note: locks are always active after power up).		
Press 'enter'.	enter	**operate setup** ● ●
Select 'operate' to lock or unlock Operation mode keys; or 'setup' to lock or unlock setup menus.		
Proceed as instructed.		

Setup mode: Password

To change the password.

Operation	Key stroke	Display

To enter existing password
press setup and key in
password (factory default is 0000).

setup   use numeric keys   ☀ **enter**

Select password menu

more **more** **more** **more** **pass_wd**

`change password?    no`

Toggle to 'yes'.

no

`change password?   yes`
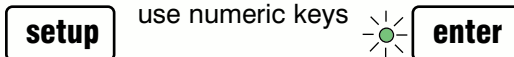
Press enter.

☀ **enter**

`new password:              del`

`new password:9999         del`

Key in new password
(e.g. 9999).

use numeric
keys

To complete.

☀ **enter** • **setup**

Setup menu: Default

To recall factory defaults.

Operation	Key stroke	Display

To enter password
press setup and key in
password (factory default is 0000).

setup   use numeric keys ⚙ **enter**

To select default.

more **more** **more** **more** **default**   **recall   new**

Select recall.

recall   **clear all settings ? no**
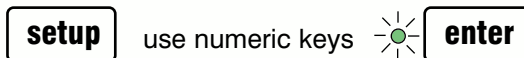
Proceed as instructed.
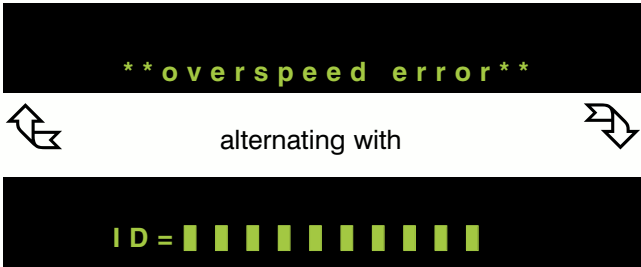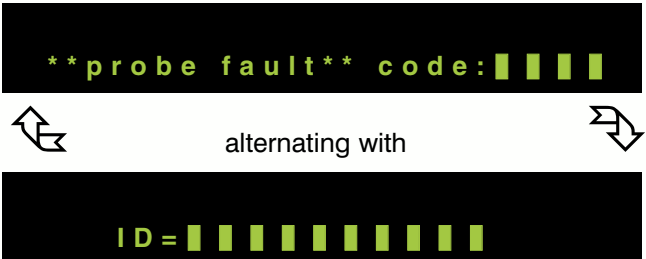
Note:

'New' option above overwrites factory default settings with the current settings. An additional security code is required to use this option. Consult your Omega dealer for further information.

Errors: Error Messages

Display	Error	Action
– – – – – – – – – preset mx/mn m m	Digital Probe over range.	Reposition probe within measuring range.
– – – – – – – – – preset mx/mn m m	Digital Probe under range.	Reposition probe within measuring range.
EEE EEE EEE preset mx/mn m m	Displayed number outside allowable range (±999.999 99mm or 39.370078 inch).	Use smaller preset value.
probe is missing new	Probe not connected Probe has been changed	Switch off unit. Connect probe. Select 'new', then proceed. as instructed.

Errors: Error Messages (continued)

Display	Error	Action
overspeed error alternating with **ID=▮▮▮▮▮▮▮▮▮**	Overspeed error (Tip of Linear Encoder has been moved too fast).	☼ **enter** Then proceed as instructed .
probe fault code:▮▮▮▮ alternating with **ID=▮▮▮▮▮▮▮▮▮**	Probe fault.	Record error code. Consult your Omega Dealer.

Specification

Numeric Display	9 digit LED display with polarity and decimal point.				
Display Length	±999.999 99mm or ±39.370078 inches. Automatic suppression of redundant leading zero's.				
Maximum	with Linear Encoder		0.05μm or 2 millionths inch		
Resolution	with Digital Probe:	DP1	0.05μm or 2 millionths inch	DP5	0.5μm or 20 millionths inch
		DP2	0.1μm or 5 millionths inch	DP10	0.5μm or 20 millionths inch
Range Lamps	Indicate Hi/OK/Lo for limit detection.				
Functions commanded through front panel					
Zero	Single key operation to zero reading on display.				
Print	Readings sent to printer or PC via the RS232C interface (Baud rate selectable 300 to 57,600)				
Motor Drive	Control of UP/DOWN for motor driven probes				
Program select	10 different programs available. Each program may have its own preset, limits and probes, or pair of probes (A+B or A-B)				
Units	Choice of mm or inches				
Preset	10 memories enable 10 different preset values to be stored.				
	Soft Keys enable direct toggle between incremental and absolute datum.				
Maximum/Minimum	Stores and displays maximum, minimum and difference values				
Limits/Tolerance	High and Lo limit values, indication by range lamps. Outputs from the back panel permit control of relays for sorting components. 10 sets of limits can be stored.				
Multiple Probes	Up to 10 probes or pairs of probes (A+B or A-B) can be assigned to different programs. Each probe can have its own Preset, Limits, Resolution and Direction.				
Probe Scan	Up to 30 probes, sharing the same preset limits etc. can be scanned.				
Mathematics	Two probes may be used in an A+B or A-B configuration.				
Resolution	Choice of 0.01μm, 0.1μm, 1μm, 10μm, 100μm or 1, 10, 100, 1000, 10,000 millionths of an inch.				
	Choice of 1, 2, 5 steps in least significant decade.				
	Note: Automatic inhibit of excessive resolution for probe in use				
Count Direction	Increasing count can be assigned to retraction or extension of probe tip.				
Reference Mark	The reference mark enables a datum to be re-established, e.g. following a power down.				
Display Freeze	External initiation of measurement and display freeze.				
Lock	Password protection may be applied to any permutation of keys or features.				

Specification

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WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,

2. Model and serial number of the product under warranty, and

3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the
   COST of the repair,

2. Model and serial number of the product, and

3. Repair instructions and/or specific problems relative to the product.

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