Metrical Contents:

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Area units:

Imperial:

sq.mile...(square mile)
acre...(acre)
sq.yard...(square yard)
sq.foot...(square foot)
sq.inch...(square inch)

Metric:

sq.km...(square kilo-metre)
hectare...(hectare)
sq.metre...(square metre)
sq.cm...(square centi-metre)
sq.mm...(square milli-metre)

Length units:

Imperial:

naut.mile...(nautical-mile)
mile
yard
foot
inch
thou...(thousands of an inch)

Metric:

km...(kilo-metre)
metre
cm...(centi-metre)
mm...milli-metre
micron...(micro-metre)
nm...(nano-metre)
angstrom

Mass units:

Imperial:

ton
cwt...(hundredweight)
lb...(pound)
oz...(ounce)

Metric:

tonne
kg...(kilo-gram)
g...(gram)

Modes:

Area
Length
Mass
Power
Pressure
Temperature
Velocity
Volume

acre
There are 640 acres per square mile.

sq.yard

The square mile contains (1760)^2 = 3,097,600 sq.yard

hectare

The hectare is an area equal to a square of 100 metre sides.
There are 100 hectares to the square km.

Temperature units:

Imperial:

deg.F...(degrees Fahrenheit)

Metric:

deg.C...(degrees Celsius)
deg.K...(degrees Kelvin)

General Introduction:

Metrical is a simplified conversion programme for Imperial/Metric measurements.

It uses a wide variety of modes and units to give a comprehensive ability.

The Help file explains the various features and niceties.

Bug reports and/or requests for custom work along the same lines may be made by contacting:

paul@pabrown.demon.co.uk

deg.C

Degrees Celsius (formerly degrees Centigrade) are defined as 100 th. of the temperature difference between the freezing and boiling point of water. The freezing point is given the value of '0' deg.C.

deg.F

Degrees Fahrenheit are defined as 180 th. of the temperature difference between the freezing and boiling point of water. The freezing point is given the value of 32 deg.F, so that boiling point is therefore 212 deg.F.

deg.K

Degrees Kelvin are Celsius size units above Absolute zero temperature. '0' deg.C is 273.15 degrees Kelvin above zero.

Unit Multipliers:

The common range of decimal abbreviations is as follows:-

dividers:

centi = 1/100
milli = 1/1000
micro = 1/1000000
nano = 1/1000000000

Thus 'nm' is the abbreviation for nano-metres (= metres / 1000000000)

multipliers:

kilo = 1,000
Mega = 1,000,000
Giga = 1,000,000,000

Thus 'km' is the abbreviation for kilo-metres (= metres * 1,000)

Velocity units:

Imperial:

knot...(nautical-miles per hour)
mph...(miles per hour)
fps...(feet per second)

Metric:

kph...(kilo-metres per hour)
m/s...(metres per second)

Volume units:

Imperial:

cu yard...(cubic yard)
cu foot...(cubic foot)
gallon (UK)
fl.oz...(fluid ounce)

Metric:

cu m...(cubic metre)
litre
ml...(milli-litre)

Pressure units:

Imperial:

psi...(pounds per square-inch)
inHg...(inches of Mercury)

Metric:

bar
torr...(equivalent to milli-metres of Mercury)

Power units:

Imperial:

hp...(horse-power)
ft.lb/sec...(foot-pounds force per second)

Metric:

kW...(kilo-Watt)
ch...(cheval-vapeur)
W...(Watt)

Display Conventions:

'Metrical' only displays a maximum number of significant figures equal to the accuracy of the conversion factor. This is shown underneath the 'constant' figure itself.

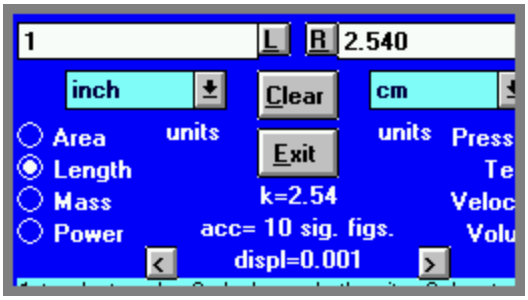
The 'significant figures' portion of an output is the number of digits after removal of the leading and trailing zeros. Thus '0.002030100' is 5 sig. figs. long and implies an accuracy to 1 part in 100,000.

When this display accuracy would otherwise be exceeded, the output changes automatically to 'exponential' form.

This gives a number followed by an exponent of 10 thus:-

1.23456e+03 equals 1.23456 times (10 to the power of 3) = 1234.56 and 1.23456e-02 equals 1.23456 times (10 to the power of minus 2) = .0123456 ..... N.B. e-02 equals 1/(10 to the power of 2) = .01

The adjustable display place setting after the decimal point is just for convenience so that when working with, say, millimetres and thousandths of an inch, the output can be in a fixed and familiar format. The default setting is .001 but changes are made by use of the two control buttons.



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knot

The knot equals 1 Nautical Mile per hour.

nautical mile

This is the International Nautical Mile and equals EXACTLY 1.852 km (by definition).

bar

The bar is approximately equal to atmospheric pressure.

nano-metre

The nano-metre is 1 thousand millionth of a metre in length, i.e. 1 thousandth of a micron. This also equals 1metre divided by 10 to the power of 9 (hence the name).

anstrom

The angstrom is 1/10th. the size of a nano-metre (see nm). It is equal to 1metre divided by 10 to the power of 10.

micron
The micron is 1 millionth the length of a metre.

hundredweight

There are 20 hundredweights in an Imperial ton, consisting of 112 pounds each.

tonne

The tonne is the metric equivalent of an Imperial 'ton' and consists of 1,000 kg.
It is less than 1.6% smaller than the 'ton'

cheval-vapeur

The cheval-vapeur equals 75 metre kilogram force per second. It is less than 2% smaller than the horse-power.

horse-power
The horse-power equals 550 foot pound force per second

gallon (UK)

The UK gallon contains 8 pints of 20 fluid ounces each.

millii-litre

The milli-litre has the volume of a cube with sides equal to 1 cm in length.

ft.lb/sec

The foot pound force per second is a unit of power equal to moving a pound force through a distance of 1 foot per second.

inHg

Inches of Mercury is a unit equal to the pressure which would cause a barometric tube filled with Mercury to exhibit the same difference in column height measured in inches.

torr

Torr units are equivalent to mm. of Mercury (see Inches of Mercury: inHg).
Torr is a unit equal to the pressure which would cause a barometric tube filled with Mercury to exhibit the same difference in column height measured in mm.