Additional COGO Input Options

Have you ever needed to enter in a whole range of data, and find that one of the measurements was in a different set of units or was a slope distance?

COGO in MSCAD can now handle these situations.

You start COGO and enter in the From Point and the Bearing (or Azimuth) – then you are asked for the Distance. This is where the change is found.

Example 1: Let's assume that we are working in Feet:

> COGO Inverse:Pt..Pt/Curve Inverse:Pt..Pt..Pt Enter From Point: <1>35 Options: +/- or Pt..Pt+-Angle Enter Quadrant Bearing like QDD.MMSS:<>: 190. -->Bearing used = N90°00'00''E Options: C#=-*/sin/cos/tan... or Pt..Pt(+-*/) a Distance Enter the Distance: <>:100m -->Distance used = 328.083990

We typed in **100m** for the distance, which means you had a measurement of 100 meters. COGO will automatically convert this to feet (100m = 100/0.3048 = 328.083990 feet) and use the scaled distance to set the new point. You can type in **100M** or **100m** and it will do the same thing.

Example 2: Let's assume that we are working in Meters:

```
> COGO
Inverse:Pt..Pt/Curve Inverse:Pt..Pt..Pt
Enter From Point: <1>35
Options: +/- or Pt..Pt+-Angle
Enter Quadrant Bearing like QDD.MMSS:<>: 190.
-->Bearing used = N90°00'00"E
Options: C#=-*/sin/cos/tan... or Pt..Pt(+-*/) a Distance
Enter the Distance: <>:100F
-->Distance used = 30.480000
```

We typed in **100F** for the distance, which means you had a measurement of 100 feet. COGO will automatically convert this to meters (100f = 100*0.3048 = 30.48 meters) and use the scaled distance to set the new point. You can type in **100F** or **100f** and it will do the same thing. Other Distance entry options include:

When the units are set to Feet:

- g or G to enter in a distance on a grade. e.g., **20g6.2** = 20*(cos(atan(6.2/100))) = 19.961670 feet
- c or C to enter a distance using chains (66 feet = 1 chain) e.g., **25c** = 25 chains = 25*66 = 1650 feet
- l or L to enter in a distance using links (0.66 feet = 1 link) e.g., **25L** = 25 links = 25*0.66 = 16.5 feet
- i or I: to enter in a distance using inches e.g., **25i** = 25 inches = 25/12 = 2.083333 feet
- s or S to force the input scale factor to be used with the distance (applies input scale factor even if the toggle is OFF). From the MsTools menu -> MicroSurvey Job Defaults. The Input Scale Factor is set (in this example it is set to 2).

General Configuratio Options			? 🗙
Data ve Distances: C Metric C Feet	Direction C Bear C Azim	:: 04.00 s: ings (NSEW) uths ┌┌── S	South
Drawing	Scale factor	100	_
Default Leroy Text Size: 80		_	
Input Scale factor: 📕		_	
Output Scale factor: 1		_	
Point Protection Tolerance: 0.001			
Set Surf	ace File and	Current Surfa	ice
MicroSurvey 10/	11/12 Data F	ïle:	
Browse			
Job Descr	iption: SRP	R	
Client	name:		
Miscellaneou	s info: 03-9	3	
F 9	et these def	aults as Perm	anent
ОКТ		Cancel	Help

Checking the Hot Toggles, the Input Scale Factor is NOT currently on.

Hot Toggles! 🛛 🔀
Point Protection Log File Output Input scale Output scale Draw lines/curves Draw distances
🔲 Draw bearings
Next pt: 36
Low pt: 1
Refresh

e.g., 25s = 25 times the Input Scale Factor (forced on) = 25*2 = 50 feet.

When the units are set to Meters:

- g or G to enter in a distance on a grade. e.g., **20g6.2** = 20*(cos(atan(6.2/100))) = 19.961670 meters
- c or C to enter a distance using chains (66 feet = 1 chain) e.g., **25c** = 25 chains = (25*66) *0.3048 = 502.920000 meters
- l or L to enter in a distance using links (0.66 feet = 1 link) e.g., **25L** = 25 links = (25*0.66) *0.3048 = 5.029200 meters
- i or I: to enter in a distance using inches e.g., **25i** = 25 inches = (25/12)*0.3048 = 0.635000 meters
- s or S to force the input scale factor to be used with the distance (applies input scale factor even if the toggle is OFF). From the MsTools menu -> MicroSurvey Job Defaults. The Input Scale Factor is set (in this example it is set to 2).

General Configuration Options
Data version number: 04.00 Distances: Directions: Metric C Bearings (NSEW) C Feet Azimuths South
Drawing Scale factor: 1000 Default Leroy Text Size: 80 Input Scale factor:
Point Protection Tolerance: 0.001 Set Surface File and Current Surface
Browse
Job Description: SRPR Client name: Miscellaneous info: 03-93 Set these defaults as Permanent
OK Toggles Cancel Help

Checking the Hot Toggles, the Input Scale Factor is NOT currently on.

Hot Toggles! 🛛 🔀
 Point Protection Log File Output
Output scale Output scale Draw lines/curves Draw distances
Draw bearings
Low pt: 1
Refresh

e.g., **25s** is 25 times the Input Scale Factor (forced on) = 25*2 = 50 meters.

<u>NOTE</u>: Using the **F** or **f** when in units of feet will have no effect. Using the **M** or **m** when in units of meters will have no effect.

You can use more than 1 of these characters in an entry – but make sure the entry makes sense! For example the following are legitimate options: (Meters) **25fg14** = (25*0.3048)* (cos(atan(14/100))) = 7.546404 meters

25fs = (25*0.3048)* Input Scale Factor (forced on) = 15.240000 meters (using the same Input Scale Factor from above of 2)

(Feet) **25mg14** = (25/0.3048)* (cos(atan(14/100)) = 81.228818 feet

 $25ms = (25/0.3048)^*$ Input Scale Factor (forced on) = 164.041995 feet (using the same Input Scale Factor from above of 2)

Calculator strings entered as distances, take these characters too, for example:

 $C(15+100g100) = 15+(100^{*}(\cos(atan(100/100)))) = 85.710678$

c(25f*4) when the drawing is in meters = (25*0.3048)*4 = 30.48 meters

 $c(25F^{*}4i)$ when the drawing is in meters = $(25^{*}0.3048)^{*}((4/12)^{*}0.3048) = 0.774192$ meters

C(5C+6.5L+22i) when the drawing is in feet = (5*66)+(6.5*0.66)+(22/12) = 336.123333 feet

c(7C-5F+30iS) when the drawing is in meters = (((7*66)-(5*0.3048)+(30/12*2))*0.3048) = 140.817600 meters (using the same Input Scale Factor from above of 2, forced on)

Anytime you are prompted for a Distance in COGO, you can enter in any value, with an appropriate character or calculator string, and you will get the calculated distance desired.

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