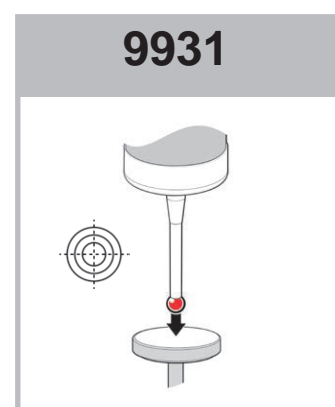
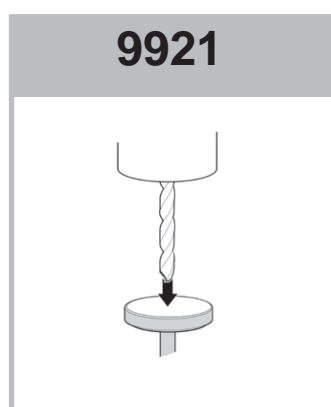
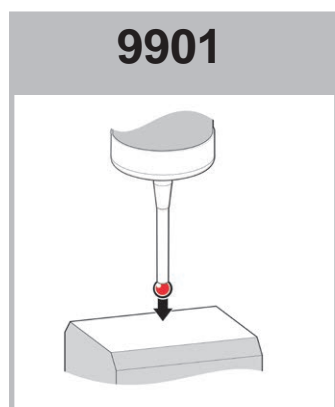


Using Renishaw GoProbe cycles with imperial units



For use with Fanuc and Meldas controllers

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Renishaw part no: H-5990-8103-01-A

Issued: 12.2014

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Introduction

GoProbe training materials and the GoProbe app use metric values throughout. This document has been created for those users who use imperial values in their manufacturing environment. This document should be used in conjunction with the GoProbe training kit and the GoProbe app.

The aim of this document is to provide examples of GoProbe cycles using imperial values so that those customers using imperial values can also benefit from using GoProbe. Some of the examples in this document include both metric and imperial values for comparison purposes.

The principles used in these examples can then be applied to all other GoProbe cycles.

This document refers to Fanuc/Meldas controls only.

User inputs

If the user input value is not a whole number, which is typical when operating in imperial mode, the decimal point in the single-line command moves. The decimal point is used to identify the value. See examples below.



If the decimal point is input twice for the D input (for example, `D=0.25.S54.;`), alarm 7 ILLEGAL USE OF DECIMAL POINT will be raised.

Metric to imperial conversions

25 mm is approximately equal to 1 in
10 mm is approximately equal to 0.4 in
3 mm is approximately equal to 0.12 in
1 mm is approximately equal to 0.04 in

User settings macros

These are always listed and set using metric values.

Part setting cycles

The probe is typically positioned ~0.4 in (10 mm) away from the part before running a GoProbe part setting cycle.

M1

1 2 3 MDI 5 =

G54

X ✓
Y ✓
Z ✓

4 G H J **G65P9901M1.A.S54.;**

~10 mm (0.4 in)

A-1=-X A1=X

Cycle start position, probe positioned ~0.4 in (10 mm) from the part.

M7

1 2 3 MDI 5 =

G54

X ✓
Y ✓
Z ✓

D	#100
Δ	#101
Δ ^x	#102 ✓
Δ ^y	#103 ✓

4 G H J **G65P9901M7.D.E.S54.;**

~10 mm (0.4 in) E
~10 mm (0.4 in)
~10 mm (0.4 in) D

For cycles M6 (internal corner) and M7 (external corner) the probe start position is ~0.4 in (10 mm) from the corner. The first touch point in the X and Y axes will then be ~0.4 in (10 mm) from the corner.

The example below shows the completed single-line command for cycle M7 using imperial values.

4 G H J **G65P9901M7.D0.4E0.4S54.;**

Tool setting cycles

The tool is typically positioned ~0.4 in (10 mm) above the tool setter for a tool setting cycle.

The diagram illustrates the steps for setting a tool cycle:

1. Select tool T03.
2. Rotate the tool.
3. Press MDI.
4. Press G H J.
5. Press I.

The resulting command is: **G65P9921M21.;**

The cycle start position is shown as ~10 mm (0.4 in) above the tool setter stylus.

OFFSET table:

NO.	GEOM.	(LENGT)
001	72.084	
002	76.397	
003	86.356	
004	74.383	
005	230.114	
006	185.732	
007	101.721	
008	000.000	
009	163.455	

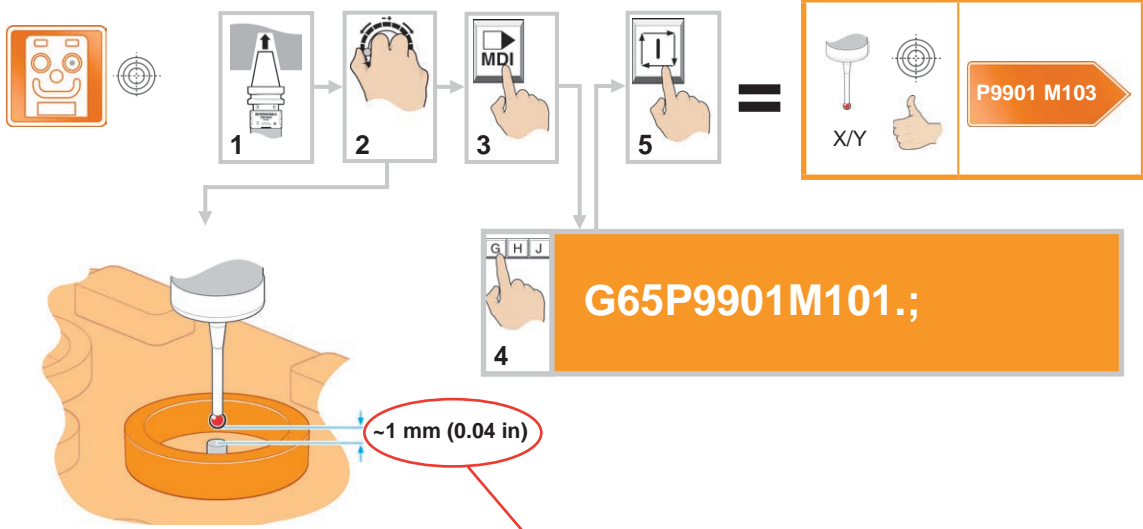
M21

Cycle start position, tool positioned ~0.4 in (10 mm) above the tool setter stylus.

Set-up and calibration cycles

The probe or tool start position varies for the set-up and calibration cycles. The following examples indicate some of the probe and tool starting positions.

M101

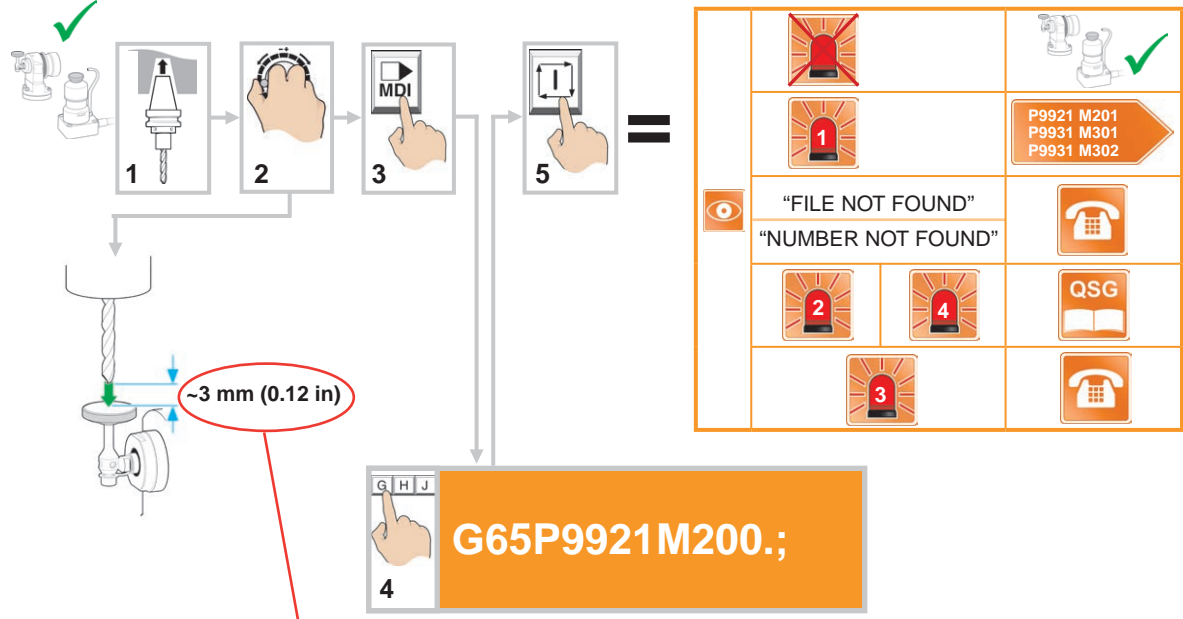


The diagram illustrates the M101 cycle. It shows five steps: 1. Probe approach, 2. Hand rotation, 3. MDI button press, 4. G/H/J key press, and 5. A second MDI button press. Below the steps, a probe is shown positioned approximately 1 mm above a calibration pin. A callout box contains the code `G65P9901M101.;`. To the right, a control panel shows a target icon, an 'XY' label, a thumbs-up icon, and a button labeled 'P9901 M103'.

~1 mm (0.04 in)

Cycle start position, probe positioned ~0.04 in (1 mm) above the calibration pin.

M200



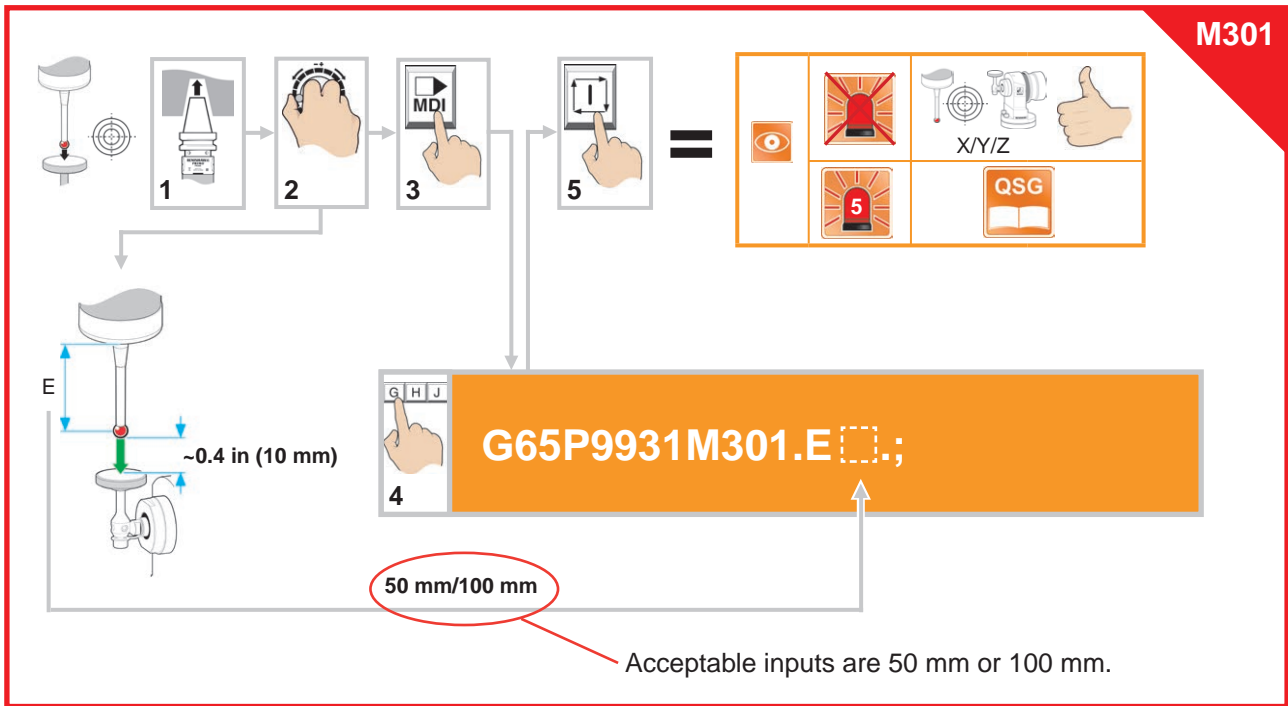
The diagram illustrates the M200 cycle. It shows five steps: 1. Tool approach, 2. Hand rotation, 3. MDI button press, 4. G/H/J key press, and 5. A second MDI button press. Below the steps, a tool is shown positioned approximately 3 mm above a tool setter stylus. A callout box contains the code `G65P9921M200.;`. To the right, a control panel displays a grid of icons: a red light, a green checkmark, a red light with '1', a button with 'P9921 M201', 'P9931 M301', and 'P9931 M302', an eye icon, 'FILE NOT FOUND', 'NUMBER NOT FOUND', a telephone icon, a red light with '2', a red light with '4', a 'QSG' button, a red light with '3', and another telephone icon.

~3 mm (0.12 in)

Cycle start position, tool positioned ~0.12 in (3 mm) above the tool setter stylus.

Probe-on-probe calibration (M301)

The probe-on-probe calibration cycle M301 uses a metric-only input for the “E” input, even if the controller is configured for imperial. Acceptable “E” inputs are E50 for a 50 mm stylus and E100 for a 100 mm stylus length.



The example below shows the completed single-line command for cycle M301 using a 50 mm stylus.



Practical exercises

The GoProbe e-learning practical exercises use metric values throughout. The examples below show some of the practical exercises with imperial values.

M3: Boss

1

2

3

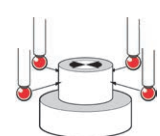
4

5

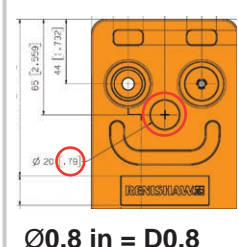
=

G55

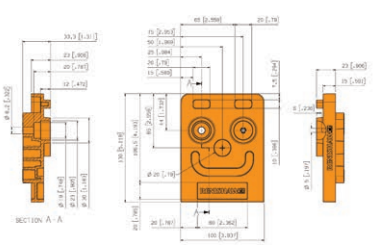
X	✓	
Y	✓	
Z		
D	#100	✓
	#101	
	#102	
	#103	

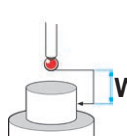


M3




Ø0.8 in = D0.8





W-0.6



G55

S55

M7: Corner (external)

1

2

3

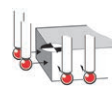
4

5

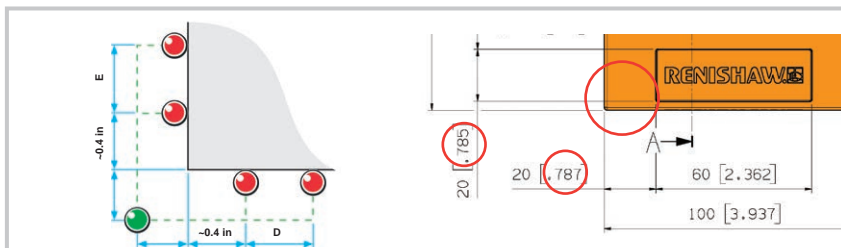
=

G55


X	✓	
Y	✓	
Z		
D	#100	
	#101	
	#102	✓
	#103	✓



M7



D=0.8 in = D0.8 **E=0.8 in = E0.8**



G55

S55

Alarms



ALARM*4*DISC*STYLUS*NOT*LEVEL

Disc stylus not level (> 15 μm [0.006 in])



ALARM*5*STYLUS*RUNOUT*EXCESSIVE

Stylus run-out excessive (> 0.2 mm [0.0079 in])



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Renishaw plc
New Mills, Wotton-under-Edge,
Gloucestershire, GL12 8JR
United Kingdom

T +44 (0)1453 524524
F +44 (0)1453 524901
E uk@renishaw.com
www.renishaw.com

RENISHAW 
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For more information on GoProbe, please
visit www.renishaw.com/goprobe



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