

G and M Commands in the DIN/ISO Interpreter for Remote from V1.46.8.3 Updated: March 2018

1 Overview G commands

Path command	Denotation	Hints
G0 / G00	Motion with fast velocity	Define fast velocity with FastVel
G1 / G01	Linear interpolation at Cartesian kinematics S-PTP motion at non Cartesian kinematics	Define feed rate with F
G2 / G02	Circle interpolation clockwise using Cartesian kinematics	with I/J/K values to define centre point
G3 / G03	Circle interpolation counter clockwise using Cartesian kinematics	with I/J/K values to define centre point
G4 / G04	Dwell time	in msec or R variable
G10 G11	Motion with fast velocity in conjunction with a frame variable Q0 ... Q499 Motion with feed rate in conjunction with a frame variable Q0 ... Q499	NCP format: FASTFRAME NCP format: MOVEFRAME
G12	Helix clockwise	with I/J/K values to define centre point, W defines the traverse angel
G13	Helix counter clockwise	with I/J/K values to define centre point, W defines the traverse angel
G17 G18 G19	Definition of interpolation plane (X-Y plane) Definition of interpolation plane (X-Z plane) Definition of interpolation plane (Y-Z plane)	NCP format: PLANE XY NCP format: PLANE XZ NCP format: PLANE YZ
G28	Approach to machine zero point resp. work piece zero point in rapid motion via intermediate position (relative related to the starting position)	NCP format: FASTZERO
G40 G41 G42	Cutter radius compensation cancel Cutter radius compensation left from contour Cutter radius compensation right from contour	Default setting Not available Not available

G53	Deactivate workpiece zero point shift	NCP format: WPCLEAR
G54	Activate workpiece zero point shift 1	G54 to G59 have separate registers to store the work piece coordinates, can also be modified with frames from the machine position table NCP format: WPREGxWRITE x=1...6
G55	Activate workpiece zero point shift 2	
G56	Activate workpiece zero point shift 3	
G57	Activate workpiece zero point shift 4	
G58	Activate workpiece zero point shift 5	
G59	Activate workpiece zero point shift 6	
G60	Switch off explicit path mode (path end)	NCP format: PATH
G64	Switch on explicit path mode (path start)	NCP format: PATHEND
G68	Switch on correction in the XY plane	NCP-Format: XYCorrectOn Specifically for Laser cutting; it assumes an investigation of the correction angle
G69	Switch off correction in the XY plane	NCP-Format: XYCorrectOff Default setting
G70	Definition of measure for translatory axis: inch	NCP format: INCH
G71	Definition of measure for translatory axis: mm	NCP format: METRIC Default setting
G74	Reference run	NCP format: REF
G75	Teach-In: The window „Current geometry file: ...“ can be activated during automatic mode	NCP format: TEACH Correction of all frames in the current geometry file is possible
G76	Teach-In: The dialog box „WpTeach- / G76 instruction in the application program“ can be activated during automatic mode	NCP format: WPTEACH Manually correction of axes position and optional activation of workpiece zero
G77	Teach-In: The dialog box „ManualMove- / G77 instruction in the application program“ can be activated during automatic mode	NCP format: MANUALMOVE Manually correction of axes position

G80	Define parameters of a drilling cycle: C or CY: CY cle P or RF: ReF erence height D or DE: DE pth T or TI: Time V or VE: Velocity VF: Velocity Fast (rapid motion) F or FI: F irst Increment Depth O or OT: OT her Increment Depth I or IC: InC rement Depth Decrease cycle by cycle R or RE: Increment RE treat L or LE: Retreat S or SE: Security Height DI: D irection PL: P lane	NCP format: DRILLDEF
G81	Simple drilling	NCP format: DRILLN
G82	Drilling with dwell	NCP format: DRILLT
G83	Drilling in operating mode countersick	NCP format: DRILLD
G86	Drilling in operating mode break chip	NCP format: DRILLB
G90	Coordinate statements are absolute statements (absolute measure)	Default setting
G91	Coordinate statements are incremental statements (incremental measure)	
G92	Not used	
G93	F word defines the processing time depends from the Motion Control ability to do the so called Inverse Time Feed Mode (ITFM) or F word defines the feed rate	in sec (when ITFM is active) or in mm/sec
G94	F word defines the feed rate	mm/min (Default setting)
G97	Specify spindle speed in rpm	Default setting
G98	Set negative software end switch	depends from the Motion Control ability
G99	Set positive software end switch	depends from the Motion Control ability
G150	Switch off: velocity proportional output of an analog voltage	NCP format: VPVOFF Default setting
G151	Switch on: velocity proportional output of an analog voltage	NCP format: VPVON Default setting
G174	Reference cycle	NCP format: REFCYCLE

G181	Wait for trigger edge on binary input	NCP format: WAITBIT
G182	Wait for special port value on binary input port	NCP format: WAITPORT
G195	Get axes acceleration (jerk) from Motion Control	NCP format: GETACCE
G196	Set axes acceleration (jerk) to Motion Control	NCP format: SETACCE
G197	Change axes	NCP format: CHANGE
G198	Parameter input for technological variable (R variable)	NCP format: PARAMETER
G199	Display text in the status line	NCP format: TYPE

2 Overview M commands

Miscellaneous command	Denotation	Hints
M00	Programmed program break (abort) -> With user interaction	NCP format: ABORT
M01	Programmed program break (stop) -> With user interaction	NCP format: QUIT
M2 / M02	Programmed program abort -> in contrast with M30 a turned on spindle will not be switched off ! -> Without user interaction	NCP format: PROGABORT
M3 / M03	Switch on spindle (clockwise)	NCP format: SCLW
M4 / M04	Switch on spindle (counter clockwise)	NCP format: SCCLW
M5 / M05	Spindle switch off	NCP format: SOFF
M6 / M06	Execute tool change	The current tool is defined by Tn, n=1...128
M8 / M08 M9 / M09	Coolant on Coolant off	NCP format: Coolant on Coolant off
M10 / M11	Workpiece clamp on / off	NCP format: WpClamp on / off
M18 / M19	Pump on / off	NCP format: Pump on / off
M20 / M21	Test mode off / on	NCP format: TOff / Ton
M22 / M23	Teach mode off / on	NCP format: TeachOff / TeachOn
M30	Program end	NCP format: PROGEND
M35 / M36	Lamp on / off	NCP format: Lamp on / off
M37 / M38 M39 / M40	Periphery option 1 on/off Periphery option 2 on/off	NCP format: Poption1 on / off Poption2 on / off

M41 / M42	Coolant 2 on / off	NCP format: Coolant2 on / off
M43 / M44 M45 / M46	Suction 1 on / off Suction 2 on / off	NCP format: Suction1 on / off Suction2 on / off
M50 / M51	Lock / unlock 4th axis, i.e. clamp / unclamp axis 4	NCP format: Lock4 / Unlock4
M52 / M53	Lock / unlock 5th axis, i.e. clamp / unclamp axis 5	NCP format: Lock5 / Unlock5
	Get inputs	Like in ProNC: GetBit GetPort GetAnalog
Mpby	Set output bit: p=port 1...32 b=bit 1...8 y=value 0 1 Set output port Output analog voltage Output PWM signal	Like in ProNC: SetBit SetPort SetAnalog SetPWM
	Query current positions (A is 1 or 2, n is X,...,W) Query current date Query current time Query current value for R variable from operator	Like in ProNC: PosA.n GetDate GetTime GetValue GETDESTINATIONPOS GETCURRENTPOS GETVELO GETSPNSPEED GETSTATEMCTL GETSTATESPN GETSTATESECC GETTICKCOUNT GETLANGUAGE GetLastErrorCode GetLastErrorText GetLatchedPosition GETVALUE GETCHAR GETSTRING GETGEAR GETELAPSEDTIME GETFILETYPE GETTOOLREFPOS

3 Special signs due to DIN 66025 / other commands

Special signs	Denotation
X,Y,Z,A,B,C,U,V,W	Address letter for 9 numerical axes X,Y,Z: Linear axes A: Rotatory axis (A rotates around X axis) B: Rotatory axis (B rotates around Y axis) C: Rotatory axis (C rotates around Z axis) U,V,W: Linear axes, parallel to X,Y,Z
I, J, K	Center point in X, Y or Z direction (according to DIN 66025 always relative to the start position)
E	Fast velocity in mm/sec (G93) or mm/min (G94 is the default setting)
F	Feed rate in mm/sec (G93) or mm/min (G94 is the default setting)
S	Revolution of spindle in rpm
T	Tool number
R	R variable (see: Programming Instruction ProNC)
Q	Q variable (see: Programming Instruction ProNC)
%	% natural number : Start of main program
(Start of comment , if comment shall extend over several lines or comment will be used as separator in the NC set
)	End of comment , if comment shall extend over several lines or comment will be used as separator in the NC set
;	Start of comment (single line comment)
CR (Carriage Return)	End of comment (single line comment)
+	Algebraic sign at decimal numbers or arithmetical operator: Addition
-	Algebraic sign at decimal numbers or arithmetical operator: Subtraction
*	Arithmetical operator: Multiplication
/	Arithmetical operator: Division
:	Character to select a coordinate component of a Q variable or a symbolic frame
?	Character for set skip
=	Assign values to coordinate address letters using indexed axis addressing