

CNC Data Ltd *Machine Tool Telemetry*

Data we can obtain from a FANUC CNC

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CNC: Function related to controlled axis/spindle

Brief description
Read actual axis feedrate(F)
Read absolute axis position
Read machine axis position
Read relative axis position
Read distance to go
Read position information
Read various data relating servo axis or spindle axis
Read skip position
Read servo delay value
Read acceleration/deceleration delay value
Read all dynamic data
Read actual spindle speed(S)
Read constant surface speed data
Read speed information
Set origin/preset relative axis position
Preset work coordinate
Read manual overlapped motion value
Cancel manual overlapped motion value
Read manual overlapped motion information
Read load information of serial spindle
Read maximum r.p.m. ratio of serial spindle
Read gear ratio of serial spindle
Read servo load meter
Read spindle load meter
Read tool tip coordinates for 3-dimensional handle feed
Read handle interrupt pulse amount for 3-dimensional handle feed
Read handle interrupt move amount for 3-dimensional handle feed
Read the modification of tool length compensation amount in tool axis dir. for 3-dimensional handle feed
Clear handle interrupt pulse and move amount for 3-dimensional handle feed
Read axis name
Read the name of controlled axis and spindle name
Read spindle name
Read the data for the manual feed for 5-axis machining
Read the machine axis movement for the manual feed for 5-axis machining
Clear the pulse amount for manual feed for 5-axis machining

CNC: Function related to CNC program

Brief description
Download NC program
Download NC program(conditional)
Verify NC program
Verify NC program(conditional)
Read buffer status for downloading/verification NC program
Download DNC program
Download DNC program(conditional)
Read the diagnosis data of downloading DNC program
Upload NC program
Upload NC program(conditional)
Search specified program
Delete all programs
Delete specified program
Delete specified program(area specified)
Read program directory
Read program information
Read program number under execution
Read program name under execution
Read sequence number under execution
Search specified sequence number
Rewind cursor of NC program
Read block counter
Read program under execution
Write program for MDI operation
Read execution pointer for MDI operation
Write execution pointer for MDI operation
Get MDI program information
Read processing time stamp data
Read directory for processing time stamp data
Copy program
Merge program
Change program number
Condense program
Read NC program by line basis
Write NC program by line basis
Delete NC program by line basis
Search string in NC program
Get result of string search in NC program
Set the protection of running/editing of NC program
Reset the protection of running/editing of NC program
Get the status of running/editing of NC program

Get execution pointer
Set execution pointer
Read execution pointer
Read information of Program memory drive
Read information Program memory file
Read information of current folder
Set current folder
Read information of subfolder
Read file information
Read number of subfolders or files
Create folder or file
Delete folder or file
Rename folder or file
Copy file
Move file
Rearrange the contents of the program
Change attribute of folder or file
Read main program
Select main program
Read NC program by line basis(For arbitrary file name)
Write NC program by line basis(For arbitrary file name)
Delete NC program by line basis(For arbitrary file name)
Search string in NC program(For arbitrary file name)
Get result of string search in NC program(For arbitrary file name)
Get execution pointer(For arbitrary file name)
Set execution pointer(For arbitrary file name)

CNC: Function related to CNC file data

Brief description
Read tool offset value
Write tool offset value
Read tool offset value(area specified)
Write tool offset value(area specified)
Read tool offset information
Read the effective setting range of tool offset value
Read work zero offset value
Write work zero offset value
Read work zero offset value(area specified)
Write work zero offset value(area specified)
Read work zero offset information
Read the effective setting range of work zero offset value
Read parameter
Write parameter
Read parameter(area specified)
Write parameter(area specified)
Read random number parameters
Get information for high-speed read of parameter
High-speed read of parameter
Read parameter information
Read minimum, maximum, total number of parameter
Read setting data
Write setting data
Read setting data(area specified)
Write setting data(area specified)
Read setting data information
Read minimum, maximum, total number of setting data
Read pitch error compensation data(area specified)
Write pitch error compensation data(area specified)
Read pitch error compensation data information
Read 3-dimensional error compensation data
Write 3-dimensional error compensation data
Read 3-dimensional error compensation value at current position
Read custom macro variable
Write custom macro variable
Read custom macro variables(area specified)
Write custom macro variables(area specified)
Read custom macro variables(double precision)
Write custom macro variables(double precision)
Read custom macro variable information
Get type of custom macro variable

Set type of custom macro variable
Read P code macro variable
Write P code macro variable
Read P code macro variables(area specified)
Read P code macro variables(double precision)
Write P code macro variables(area specified)
Write P code macro variables(double precision)
Read P code macro variable information
Read P code macro variable information(2)
Get type of P code macro variable
Set type of P code macro variable
Read M code group data
Write M code group data
Read M code group data(executing,executed M code)
Read M code group data(for program restart)
Read setting data for High-speed and high-precision machining
Write setting data for HPCC
Set setting data for HPCC automatically
Read tuning data(parameter input) for HPCC
Write tuning data(parameter input) for HPCC
Read tuning data(acc./dec. input) for HPCC
Write tuning data(acc./dec. input) for HPCC
Tune up tuning data for HPCC automatically
Read fine level for HPCC
Select fine level for HPCC
Read active fixture offset
Read fixture offset value(area specified)
Write fixture offset value(area specified)
Read interference check data(area specified)
Write interference check data(area specified)
Read interference check data information
Read work coordinate shift value
Write work coordinate shift value
Read work coordinate shift measured value
Write work coordinate shift measured value
Read the effective setting range of work coordinate shift value
Read tool offset value for B axis(area specified)
Write tool offset value for B axis(area specified)
Read tool offset information for B axis
Read command data for B axis

CNC: Function related to tool life management data

Brief description
Read tool life management data(tool group number)
Read tool life management data(number of tool groups)
Read tool life management data(number of tools)
Read tool life management data(tool life)
Read tool life management data(tool life counter)
Read tool life management data(tool length number-1)
Read tool life management data(cutter compensation num.-1)
Read tool life management data(tool information-1)
Read tool life management data(tool number)
Read tool life management data(tool number, tool life, tool life counter)(area specified)
Read tool life management data(all data within group)
Write tool life management data(tool life counter)(area specified)
Read tool life management data(used tool group number)
Read tool life management data(max. number of tool groups)
Read tool life management data(max. number of tool within group)
Read tool life management data(used tool number within group)
Read tool life management data(tool data1)
Read tool life management data(tool data2)
Write tool life management data(tool data1)
Write tool life management data(tool data2)
Read tool life management data(tool group information)
Write tool life management data(tool group information)
Delete tool life management data(tool group)
Insert tool life management data(tool data)
Delete tool life management data(tool data)
Clear tool life management data(tool life counter, tool information)(area specified)
Read tool life management data(maximum number of tool groups, maximum number of tool within group, maximum number of life count)
Read tool life management data(next/current/last used tool group number)
Read tool life management data(tool group information) (area specified)
Read tool life management data(tool data) (area specified)
Read tool life management data(Exchange necessary tool group number)

CNC: Function related to tool management data

Brief description
New registration of Tool management data
Delete Tool management data
Read Tool management data
Write Tool management data
Write individual data of Tool management data
New registration of Magazine management data
Delete Magazine management data
Read Magazine management data
Write individual data of Magazine management data
Write tool geometry data
Read tool geometry data

CNC: Function related to history data

Brief description
Stop logging operation history data
Restart logging operation history data
Read number of operation history data
Read operation history data
Clear operation history data
Read signals related operation history
Write signals related operation history
Record of key stroke
Read number of alarm history data
Read alarm history data
Stop logging external operator's message history data
Restart logging external operator's message history data
Read external operator's message history data information
Read number of external operator's message history data
Read external operator's message history data
Clear external operator's message history data

CNC: Function related to servo/spindle

Brief description
Read loop gain for servo adjustment
Read real current for servo adjustment
Read real speed for servo adjustment
Read number of spindle
Read operation mode for spindle setting
Read position deflection S for spindle adjustment
Read position deflection S1,S2 for spindle adjustment(synchronous control)
Read position deflection Z of tapping axis for spindle adjustment(rigid tapping)
Read synchronous error for spindle adjustment(synchronous control mode)
Read synchronous error for spindle adjustment(rigid tapping mode)
Read spindle alarm for spindle monitor
Read control input signal for spindle monitor
Read control output signal for spindle monitor

CNC: Function related to waveform diagnosis

Brief description
Read waveform diagnosis parameter
Write waveform diagnosis parameter
Start sampling waveform diagnosis data
Stop sampling waveform diagnosis data
Read sampling status of waveform diagnosis data
Read waveform diagnosis data

CNC: Function related to PUNCH PRESS

Brief description
Read tool control data
Write tool control data
Read tool information data
Read tool data
Write tool data
Read multiple tool data
Write multiple tool data
Read safety zone data
Write safety zone data
Read tool zone data
Write tool zone data
Read actual tool zone data
Read number of automatic setting zone
Write number of automatic setting zone

CNC: Function related to LASER
Brief description
Read cutting condition file(cutting data)
Write cutting condition file(cutting data)
Read cutting condition file(piercing data)
Write cutting condition file(piercing data)
Read cutting condition file(edge cutting data)
Write cutting condition file(edge cutting data)
Read cutting condition file(slope control data)
Write cutting condition file(slope control data)
Read duty data for power control
Write duty data for power control
Read laser power data
Read power compensation coefficient
Write power compensation coefficient
Read assist gas selection
Write assist gas selection
Read assist gas flow
Write assist gas flow
Read laser power for contouring
Write laser power for contouring
Read laser power for piercing
Write laser power for piercing
Read command data of laser
Read command data of reference displace
Write command data of reference displace
Read error of Z-axis tracing
Read active cutting number/piercing number/slope number
Read comment data
Read laser power selection
Write laser power selection
Read laser power control
Write laser power control
Read the history data of power compensation coefficient
Read the management time
Write the management time
Read data related to electrical discharge at power compensation ends
Read alarm history data related to electrical discharge

CNC: Function related to WIRE CUT

Brief description
Set wire vertical position
Read the measured point type data
Write the measured point type data

CNC: Function Reference related to data server,DNC1,DNC2,OSI-Ethernet

Brief description
Transfer file from host to DATA SERVER
Transfer file from DATA SERVER to host
Read status of file transfer between host and DATA SERVER
Read directory in DATA SERVER
Delete file in DATA SERVER
Download from DATA SERVER to CNC
Upload from CNC to DATA SERVER
Read upload/download status between DATA SERVER and CNC
Get DNC operation file name in DATA SERVER
Set DNC operation file name in DATA SERVER
Read setting data for DATA SERVER
Write setting data for DATA SERVER
Check hard disk on DATA SERVER
Format hard disk on DATA SERVER
Save I/F buffer for DATA SERVER
Read I/F buffer for DATA SERVER
Read maintenance information for DATA SERVER
Get mode of DATA SERVER
Set mode of DATA SERVER
Read error message for DATA SERVER
Transfer file from personal computer to DATA SERVER
Transfer file from DATA SERVER to personal computer
Read DNC file name for DNC1, DNC2, OSI-Ethernet
Write DNC file name for DNC1, DNC2 ,OSI-Ethernet
Read communication parameter for DNC1, DNC2 , OSI-Ethernet
Write communication parameter for DNC1, DNC2, OSI-Ethernet
Read logging message for DNC2
Read operator's message for DNC1,DNC2
Read receipt message for OSI-Ethernet
Read sending message for OSI-Ethernet
Send message for OSI-Ethernet
Clear message buffer for OSI-Ethernet
Read receipt status of message for OSI-Ethernet
Get Ethernet board parameter
Set Ethernet board parameter
Get error message of Ethernet board
Get DATA SERVER mode
Set DATA SERVER mode
Get hard disk information of DATA SERVER
Get hard disk file list of DATA SERVER

Delete hard disk file of DATA SERVER
Copy hard disk file of DATA SERVER
Change of hard disk file name of DATA SERVER
PUT of hard disk file of DATA SERVER
MPUT of hard disk file of DATA SERVER
Get host login directory information of DATA SERVER
Get host file list of DATA SERVER
Get host file list of DATA SERVER (2)
Delete host file of DATA SERVER
GET of host file of DATA SERVER
MGET of host file of DATA SERVER
Get execution result of function of DATA SERVER
Stop function for DATA SERVER
Input of NC file in DATA SERVER
Input of NC file in DATA SERVER (2)
Output of NC file in DATA SERVER
Input of NC file in DATA SERVER (DATA SERVER -> PC)
Output of NC file in DATA SERVER (PC -> DATA SERVER)
Get hard disk file name of DATA SERVER for DNC operation
Set hard disk file name of DATA SERVER for DNC operation
Get host file name of DATA SERVER for DNC operation
Set host file name of DATA SERVER for DNC operation
Get connected host of DATA SERVER
Set connects host of DATA SERVER
Get maintenance information of DATA SERVER
Check of hard disk of DATA SERVER
Format of hard disk of DATA SERVER
Make hard disk directory of DATA SERVER
Delete hard disk directory of DATA SERVER
Change of current directory of hard disk of DATA SERVER
LIST-PUT of hard disk file of DATA SERVER
LIST-DELETE of hard disk file of DATA SERVER
LIST-GET of host file of DATA SERVER
Get directory of DATA SERVER for M198 operation
Set directory of DATA SERVER for M198 operation
Get connected host of DATA SERVER for M198 operation
Set connects host of DATA SERVER for M198 operation
Search string in NC program in DATA SERVER
Get result of string search in NC program in DATA SERVER
Download to DATA SERVER
Get the parameter of Ethernet
Set the parameter of Ethernet
Get the mode of DATA SERVER
Set the mode of DATA SERVER
Get the maintenance information on DATA SERVER

Get the connection host number of Ethernet
Set the connection host number of Ethernet
Get the folder for M198 operation of DATA SERVER
Set the folder for M198 operation of DATA SERVER
Get the host for M198 operation of DATA SERVER
Set the host for M198 operation of DATA SERVER
Get the format form of the ATA card of DATA SERVER
Format of the ATA card of DATA SERVER
Check disk of the ATA card of DATA SERVER
Get file for DNC operation
Set file for DNC operation
Get memory device information on DATA SERVER
Get current folder
Get file list information
Make folder
Delete folder
Delete file
Change current foledr
Change folder name or file name
Copy file of DATA SERVER
Read file transfer result of DATA SERVER
Stop file transfer of DATA SERVER

CNC: Function Reference related to servo learning data

Brief description
Reading of the data from I/F buffer for the servo learning data
Writing of the data to I/F buffer for the servo learning data
Stop of reading/writing of the servo learning data

CNC: Function related to Unsolicited messaging function

Brief description
Set the unsolicited messaging parameters
Set the unsolicited messaging parameters (2)
Get the unsolicited messaging parameters
Get the unsolicited messaging parameters (2)
Initiate the unsolicited messaging session
Terminate the unsolicited messaging session
Read the unsolicited messaging data
Read the unsolicited messaging data (2)

PMC: Function related to PMC

Brief description
Read message from PMC to MMC
Write message from MMC to PMC
Read message from PMC to MMC (conditional)
Write message from MMC to PMC (conditional)
Read PMC data(area specified)
Write PMC data(area specified)
Read data from extended backup memory
Write data to extended backup memory
Read maximum size of extended backup memory
Read PMC data information
Read control data of PMC data table
Write control data of PMC data table
Read the sum total group of control data
Write the sum total group of control data
Set the PMC timer tipe
Get the PMC timer tipe
Get detail error for PMC
Read PMC alarm messages
Read PMC title data
Upload PMC parameter
Download PMC parameter
Select the PMC
Get the current PMC unit type
Read the number of existing PMC paths
Read the PMC system information

PMC: Function Reference related to PROFIBUS-DP

Brief description
Read series/version of PROFIBUS software
Read bus parameter of master function
Write bus parameter of master function
Read slave parameter of master function
Write slave parameter of master function
Read address allocation of master function
Set address allocation of master function
Read address allocation of slave function
Set address allocation of slave function
Read state of slave function
Reads slave index data of master function
Writes slave index data of master function
Reads slave parameter of master function(2)
Writes slave parameter of master function(2)
Reads DI/DO address data of master function
Writes DI/DO address data of master function
Reads indication address for communication mode of master function
Writes indication address for communication mode of master function
Reads operation mode of master function
Writes operation mode of master function
Reading of the parameters of the PROFIBUS master function
Setting the parameters of the PROFIBUS master function
Initialization of the specified parameters of the PROFIBUS master function
Reading of all slave table
Execution of sub-function
Reading of the setting assistant parameters
Reading of an error code
Change of the operation mode
Reading of the communicating information
Reading of status of connected slave
Reading of the information of slave station
Reading of the number of slot on master function
Reading of the slot information on master function
Reading of the parameters of the PROFIBUS slave function
Setting of the parameters of the PROFIBUS slave function
Initialization of the parameters of the PROFIBUS slave function
Reading of the communication state of the PROFIBUS slave function
Reading of the parameters of the PROFIBUS slave function(2)
Setting of the parameters of the PROFIBUS slave function(2)
Reading of the communication state of the PROFIBUS slave function(2)

CNC: Function related to others

Brief description
Read CNC system information
Read CNC status information
Read alarm status
Read alarm information
Read alarm message
Read modal data
Read G modal code
Read commanded data
Read diagnosis data
Read diagnosis data(area specified)
Read random number diagnosis data
Read diagnosis data information
Read minimum, maximum, total number of diagnosis data
Read A/D conversion data
Read operator's message
Set path number(for multi-path)
Get path number(for multi-path)
Read CNC configuration information
Read program restart information
Search sequence number for program restart
Read output signal image of software operator's panel
Write output signal of software operator's panel
Read general signal image of software operator's panel
Write general signal image of software operator's panel
Read general signal name of software operator's panel
Write general signal name of software operator's panel
Get detail error for CNC
Read maximum valid figures, number of decimal places
Read block restart information
Read menu switch signal
Write menu switch signal
Read internal position compensation data(cutter compensation/tool nose radius compensation)
Read internal position compensation data(tool length compensation)
Read internal position compensation data(canned cycle)(canned cycle)
Read internal position compensation data(coordinate rotation)
Read internal position compensation data(3-D coordinate conversion)
Read internal position compensation data(programmable mirror image)
Read internal position compensation data(scaling)
Read internal position compensation data(3-D tool compensation)
Read internal position compensation data(tool position compensation)

Read series/version of CNC system software
Read series/version of CNC system software (2)
Read series/version of CNC system software (3)
Read of CNC hardware configuration
Read module configuration of CNC system
Read module configuration of CNC system (2)
Get calendar timer of CNC
Set calendar timer of CNC
Get timer data of CNC
Set timer data of CNC
CNC reset
Clear CNC alarm
Read F-ROM information on CNC
Read F-ROM data from CNC
Write F-ROM data to CNC
Delete F-ROM data on CNC
Read S-RAM information on CNC
Read S-RAM data from CNC
Get state of NC data protection
Set state of NC data protection
Read SRAM variable area for C language executor
Write SRAM variable area for C language executor
Read maximum size of SRAM variable area for C language executor
Read Ethernet board information
Read additional workpiece coordinate systems number
Read the repeat counter
Read the repeat counter(2)
Read machine specific maintenance item
Write machine specific maintenance item
Read cnc maintenance item
Read maintenance item status
Write maintenance item status
Get CNC display language