

## READ FANUC DIAGNOSIS DATA

To find out reasons for errors, monitor temperatures or power consumption or read diagnostic data from spindles, servos and other components **Fanuc diagnosis data** is needed. This utility enables you to acquire this data and even scan the controllers diagnosis area for specific parameters.

Diagnosable items include (Fanuc 30i, 31i, 32i Model B):

- Causes when the machine does not travel
- Reader/puncher interface output state
- State of TH alarm
- Display language of the CNC screen
- Details of serial Pulse coder
- Details of separate serial Pulse coder alarms
- Details of invalid servo parameter alarms (on the CNC side)
- Position error amount
- Machine position
- Distance from the end of the deceleration dog to the first grid point
- Reference counter
- Motor temperature information
- Cause that sets bit 4 (APZ) of parameter No. 1815 to 0
- Details of invalid servo parameter setting alarms (on the servo side)
- Diagnosis data related to the Inductosyn absolute position detector
- Diagnosis data related to the serial spindles
- Diagnosis data related to rigid tapping
- Diagnosis data related to polygon machining with two spindles
- Diagnosis data related to the small-hole peck drilling cycle
- Diagnosis data related to the dual position feedback function
- Automatic alteration of tool position compensation
- Data for adjusting the compensation of the start position of thread cutting when the spindle speed is changed
- State of high-speed HRV current control
- Thermal growth compensation along tool vector
- Spindle error and warning states
- OVC level
- Linear inclination compensation function
- DC link voltage information
- Servo motor
- Reason why a start cannot be performed
- Automatic data backup
- Fan rotation speed

- Custom macro / execution macro / auxiliary macro
- Spindle revolution number history function
- Built-in 3D interference check
- Detector battery exhaustion
- Diagnosis data related to axis synchronous control
- Diagnosis data related to synchronous/composite control
- Details of invalid FSSB setting alarms
- Diagnosis data related to linear scale with absolute address reference marks
- Diagnosis data related to flexible path axis assignment
- Pulse superimposed function
- Total of the current actual power consumption of all servo axes/spindles
- Current actual power consumption of each servo axis
- Current actual power consumption of each spindle
- Accumulated value of the total power consumption of all servo axes/spindles
- Accumulated value of power consumption of each servo axis
- Accumulated value of power consumption of each spindle
- Interpolation state
- 3-dimensional machine position compensation
- Diagnosis data related to automatic phase synchronization for flexible synchronous control

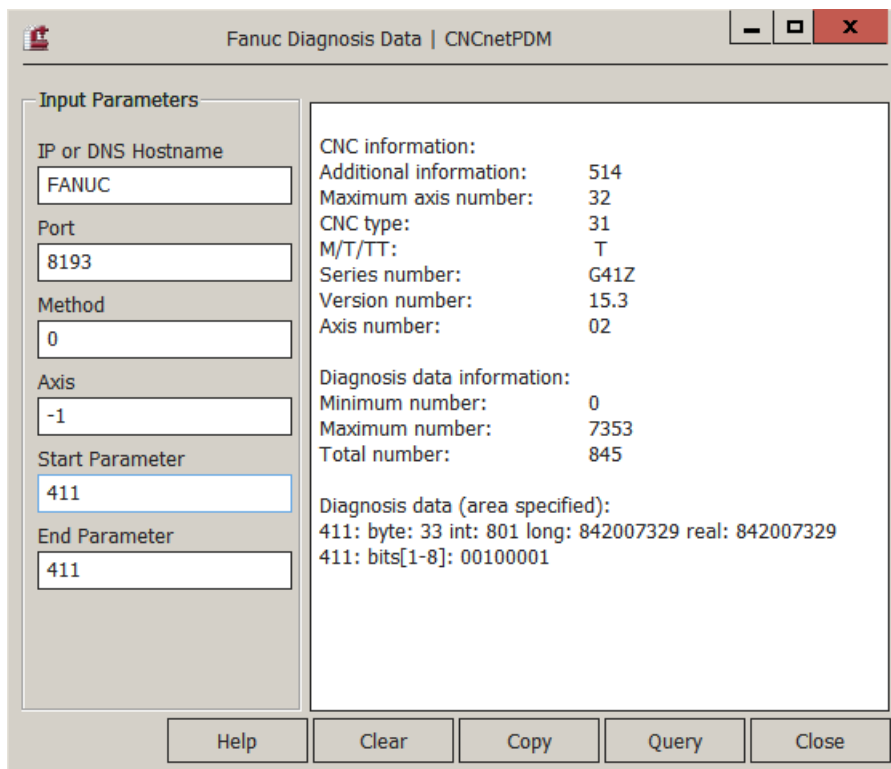
**Important:** If you're using HSSB (High Speed Serial Bus) see notes on HSSB below. In this case run the tool directly on the PC with the HSSB interface card!

If you can access the controller via the network it is highly recommend to use the program on a laptop with a network connection at the shop-floor in front of the machine.

## SETUP & USAGE

1. Download [fanucdiagnosis.zip](#).
2. Extract all contents of fanucdiagnosis.zip to a folder on your PC.
3. Navigate to the folder with FanucDiagnosisData.exe and double click it.
4. In section input parameters enter all information to identify controller, axis parameter and address range to be queried.
5. If you access your controller via network enter the IP Address or DNS Hostname.
6. Under Port enter the port number configured for the FANUC Focas option at the controller, default 8193.
7. Only if you access your controller via HSSB change Method to 1 for 'real' HSSB or 2 for NCGUIDE HSSB.
8. Enter the correct axis number for the parameter to be queried (-1 = all axes, 0 = no axes, 1-n = axis number).
9. Input Start and End number of the diagnosis parameters that should be read.

After clicking [Query] you should see output similar to the following in the right pane:



The screenshot shows a window titled "Fanuc Diagnosis Data | CNCnetPDM". On the left, under "Input Parameters", the following values are entered: IP or DNS Hostname: FANUC, Port: 8193, Method: 0, Axis: -1, Start Parameter: 411, and End Parameter: 411. On the right, the query results are displayed:

```

CNC information:
Additional information: 514
Maximum axis number: 32
CNC type: 31
M/T/TT: T
Series number: G41Z
Version number: 15.3
Axis number: 02

Diagnosis data information:
Minimum number: 0
Maximum number: 7353
Total number: 845

Diagnosis data (area specified):
411: byte: 33 int: 801 long: 842007329 real: 842007329
411: bits[1-8]: 00100001
  
```

At the bottom of the window are buttons for Help, Clear, Copy, Query, and Close.

FIG 1: FanucDiagnosisData: Read diagnosis parameter 411

In this example data of address 411 (Spindle Speed) for all axes (-1) was queried via network from a controller with DNS Hostname FANUC. If data can be found at the selected addresses the program outputs 4 values: Byte, Bits 1-8, Word and Long.

In the above example the program found data at address 411. If you get an error please look [here](#) (section PMC Data Window) to find out the reason.

Tip: By clicking on [Copy] you can copy the output to the clipboard and simply paste it into a text file.

Notes:

- Diagnostic items with a preceding axis name (1) have to be queried with the respective axis number e.g. X = 1, Z = 2
- Items prepended with S + number (2) have to be read with Axis = -1
- Items without preceding characters (3) have to be acquired with Axis = 0

## UNIVERSAL DRIVER DATA TYPES

To get correct values output by our **Universal Device Driver for Fanuc controllers** set 'Output item' in your device INI file as follows:

- For output that shows bits 0-8 (4) use output item 'bdata'
- For output with a decimal point (5) use 'rdata'
- If plain numbers (6) are output use either 'cdata', 'idata' or 'ldata', compare values displayed at the controller with FanucDiagnosisData

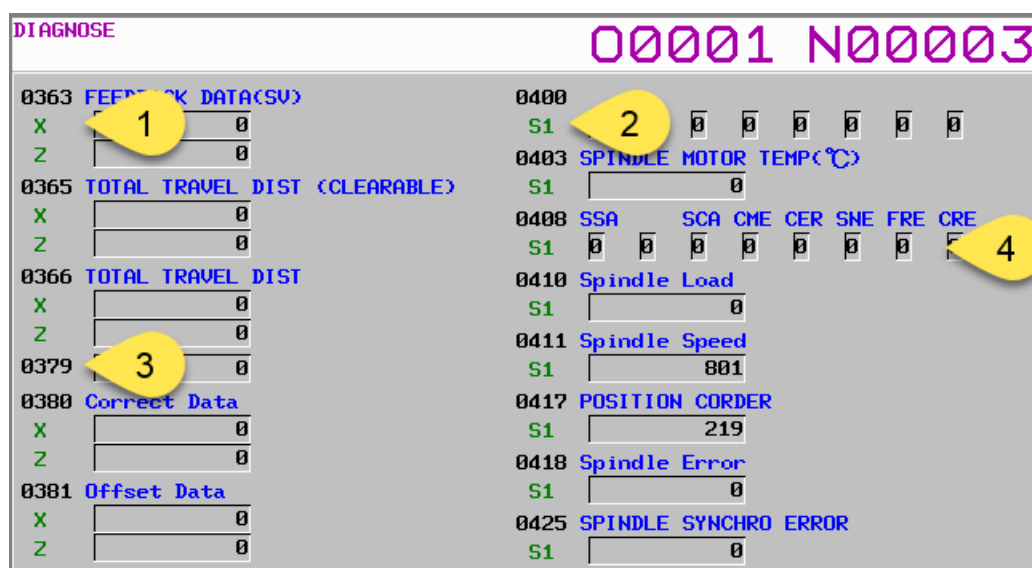


FIG 2: Fanuc 31i Model B Diagnosis data output

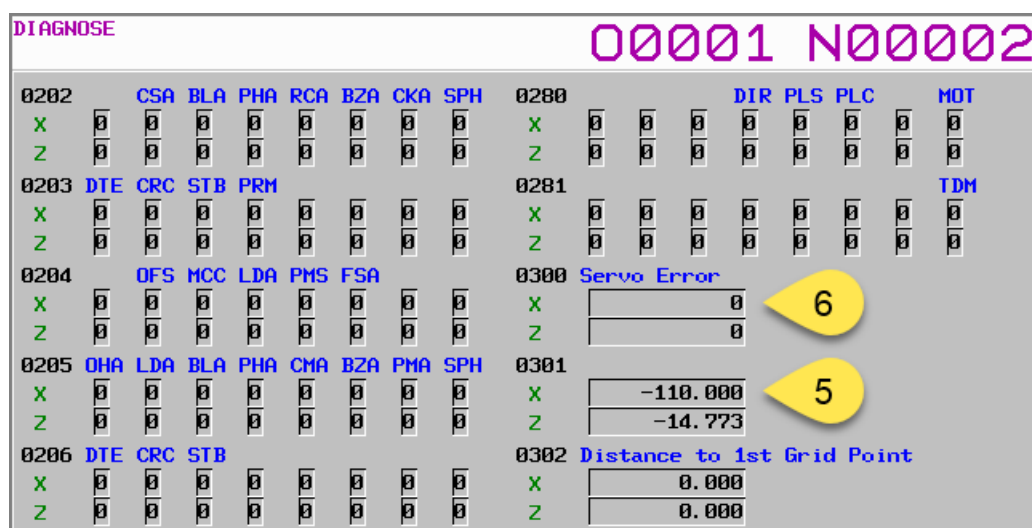


FIG 3: Fanuc 31i Model B Diagnosis data output

## HSSB

If your machine has a PC that is connected to the controller via HSSB or you use HSSB features of FANUC's NCGUIDE simulation software the setup procedure is slightly different. In both cases do **NOT** use the dll files starting with fwlib (e.g. Fwlib32.dll) included in fanucpmc.zip. For HSSB on a real machine use the fwlib dll's that the machine's PC uses (search for them). For NCGUIDE use the following 5 dll's that are installed by NCGUIDE: fwlib0DN.dll, Fwlib32.dll, fwlibNCG.dll, hssb.dll and mcnhssb.dll.