

HEIDENHAIN PART COUNTER DATA

For any kind of performance-, OEE- or cycle-related analysis of machine data information about the number of produced workpieces is required. Although Heidenhain TNC and iTNC controllers by design have no built in part counter function **CNCnetPDM enables to automatically acquire this data** without any user action required.

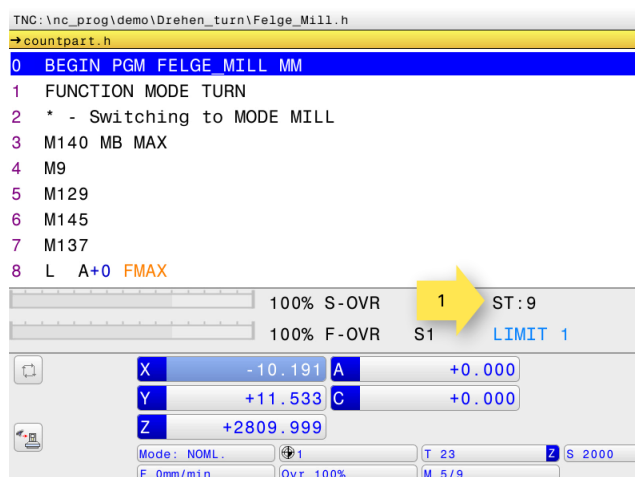


FIG 1: Part counter output (1) (Heidenhain TNC 640)

TECHNICAL BACKGROUND

Heidenhain controllers have the ability to display and store workpiece counters. Storage is performed by the machine's Programmable Logic Controller (PLC).

- For TNC 426, 430 and iTNC 530 devices PLC Word Address 20 is used.
- Newer NCK based controls like TNC 320, 620 and 640 use PLC Word Address 10.

WORD	0	2	4	6	8	10
0	+0	+0	+1	+0	+0	+11
20	+8	+0	+0	+0	+0	+0
40	+0	+0	+0	+0	+0	+0
60	+0	+0	+0	+0	+0	+0
80	+0	+0	+0	+0	+0	+0
100	+29165	-2	-15738	+1	+30774	+381
120	+15543	+42	+0	+0	+0	+0
140	+0	+0	+0	+0	+0	+0
160	+0	+0	+0	+0	+0	+0
180	+0	+0	+0	+0	+6424	+0
200	+761	+0	+0	+0	+0	+0
220	+0	+0	+0	+0	+0	+0
240	+0	+0	+0	+0	+0	+0
260	+0	+0	+0	+0	+0	+0
280	+0	+0	+0	+0	+0	+0
300	+0	+0	-1	+0	+0	+0
320	+0	+0	+0	+0	+0	+0
340	+0	+0	+0	+0	+0	+0
360	+0	+0	+0	+0	+0	+0
W10 = WG_WORKPIECE_COUNTER						

FIG 2: Heidenhain PLC workpiece counter (TNC 640)

ACQUIRE PART COUNTS

To acquire part counter data you have to utilize an unused Q-Parameter that is not reset automatically, preferably between Q20 and Q99. The following example uses Q48.

Write a small utility program, here COUNTPART, that maintains parameter Q48 and updates the respective PLC Address value. Please select only one version of line 2 according to your controller type.

```

0 BEGIN PGM COUNTPART MM
1 FN 1: Q48 =+Q48 + +1 ;Increase Q48 by 1
2 FN 17: SYSWRITE ID 2000 NR70 IDX20 =+Q48 ;Write Q48 to PLC Workpiece Counter W20
iTNC 530
2 FN 17: SYSWRITE ID 2000 NR70 IDX10 =+Q48 ;Write Q48 to PLC Workpiece Counter W10
TNC 640
3 END PGM COUNTPART MM

```

To count parts you simply have to add one line to every NC Program before its end that calls the above program e.g.

```

...
10 CALL PGM COUNTPART
11 END PGM FELGE_MILL MM

```

READ COUNTER DATA

Reading of part counts with the **CNCnetPDM Heidenhain device driver** can be controlled by using the INI file which is automatically created for every connected machine e.g. heidenhain_1000.ini for machine number 1000.

For counting workpieces section [1] of this file is used. To activate counting edit the file with a text editor, set Active = 1 and adjust Input parameter 1 according to your controller type, 20 for TNC 426, 430 and iTNC 530, 10 for TNC 320, 620 and 640. Also make sure that CollectCounters = 1 in CNCnetPDM.ini.

For testing you can also use the **Heidenhain PLC utility program** and query the respective addresses.