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Controller requirements: Productivity+™ Scanning Suite

Siemens SINUMERIK 840D sl

The information within this document provides the minimum recommended controller requirements to enable the use of a SPRINT™ system with Productivity+™ on a machining centre with a Siemens SINUMERIK 840D sl controller.

NOTE: Part numbers and descriptions within this document relating to items provided by organisations other than Renishaw are provided for information only. Whilst every effort has been made to ensure these are accurate, contact the machine tool builder, controller OEM or distributor for confirmation before purchasing.

CNC plug-in installations

NCU version 2.6 service pack 1, hotfix 8 or later [1]

Controller option		
Synchronized actions stage 2		
SINUMERIK Integrate Run MyHMI / 3GL software option P60 (option number 6FC5800-0AP60-0YB0) or SINUMERIK Integrate Run MyHMI / 3GL (for Siemens Solution Partners) option P65 (option number 6FC5800-0AP65-0YB0) or SINUMERIK Operate Runtime licence OA .net software option P66 (option number 6FC5800-0AP66-0YB0)		
1 × high-speed digital input (utilises SETINT command on DI0–DI7 only)		
COrrelated Position Access (COPA) compile cycle (recommended) (contact Siemens for option number) and SINUMERIK Integrate Run MyCC / COPA option (option number 6FC5800-0AN61-0YB0) [2]	**OR**	Measurement stage 2 (contact Siemens for option number)
1 × high-speed probe sensor input		2 × high-speed probe sensor inputs
4 × high-speed digital outputs [2]		3 × high-speed digital outputs
MD 10061 $MN_POSCTRL_CYCLE_TIME < 0.005 [3]		

Application-dependent options	For use with
TRAORI	Productivity+™ Machine Health Check
CYCLE800	5-axis prismatic measurement

[1] For earlier NCU versions, contact Renishaw.

[2] The first two on-board digital outputs ($A_OUT[1] and $A_OUT[2]) of the NCU are high-speed digital outputs and must be reserved for the Productivity+ system. (The COrrelated Position Access (COPA) compile cycle uses these digital outputs exclusively.)

[3] When using COPA it is recommended that machine parameter 10061 $MN_POSCTRL_CYCLE_TIME is less than (or equal to) 0.005 (seconds). If 10061 $MN_POSCTRL_CYCLE_TIME is greater than 0.005 (seconds), measurement feedrate should be reduced to maintain accuracy.

In addition to the Productivity+ CNC plug-in, a series of optional toolkits are available providing enhanced functionality.

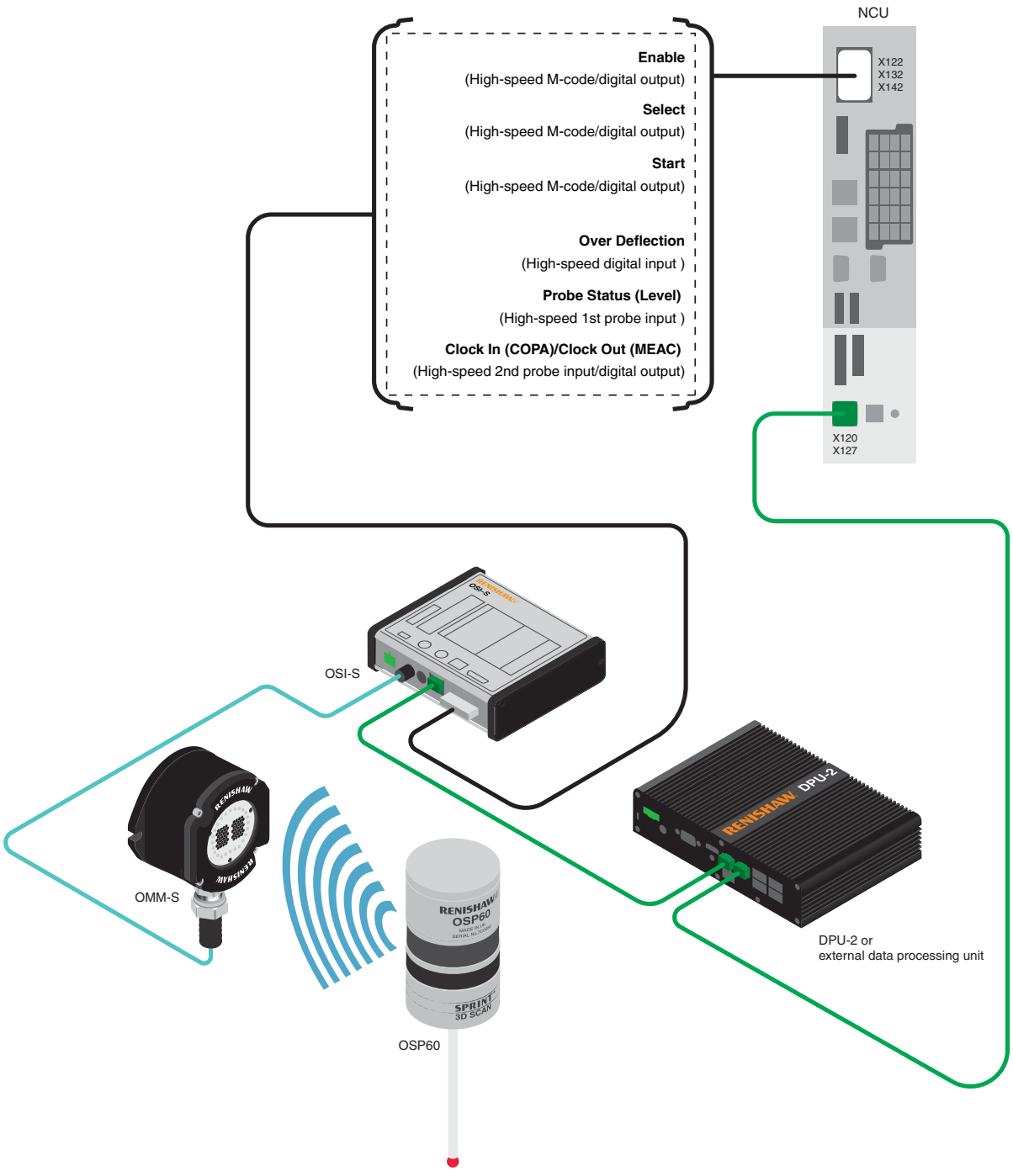
Typically, run-time elements of the Productivity+ Scanning Suite are installed on an external data processor. Use of a Renishaw DPU-2 (Renishaw part no. A-4007-4230) is recommended.

The minimum recommended specification for any alternative external data processor (PC) is:

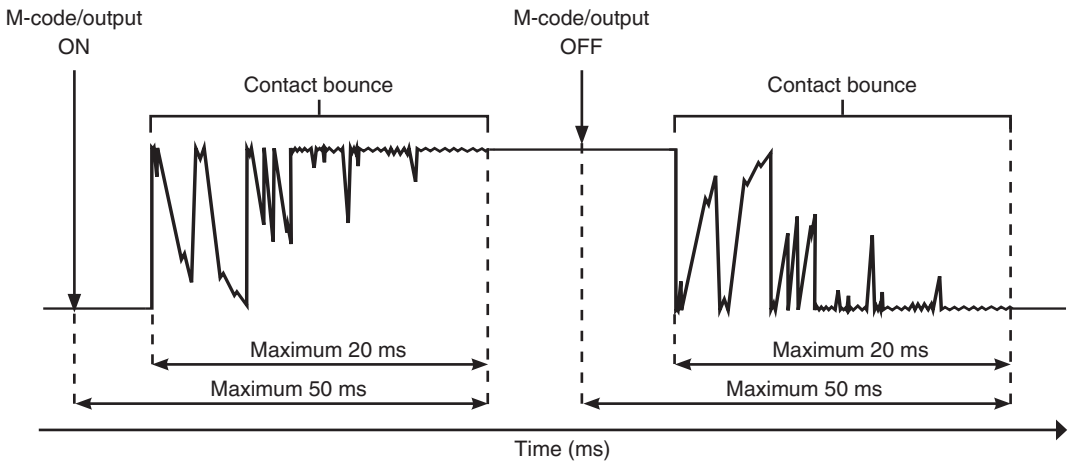
- Microsoft® Windows® 10 (Enterprise or Professional)
- Intel Core i3-5010U
- 2.1 GHz, 2 cores, 4 threads
- 4 GB RAM
- 64 GB solid state drive
- Two 100/1000Base-T Ethernet connections (dedicated to Productivity+). If a customer specific network connection is required, an additional Ethernet connection is required

NOTE: It is possible to install onto an external data processor with a lower specification, however this is the minimum recommended specification based on the data processing requirements of Productivity+ software applications.

Connection schematic



Output signal requirements



Any increase in these values will impact negatively on cycle times and may prevent the system working reliably.

The 3 × pairs of latched M-codes (high-speed digital outputs) should be reset when Reset is pressed on the CNC machine tool.

The output/input signal level change must be from 0 V to between 5 V and 30 V.

Use of solid-state relays is recommended as issues can arise from noise on mechanical relay contacts (contact debounce time of 20 ms maximum).

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