

Softing opens connectivity to Siemens SINUMERIK 840D sl CNC machine tool automation solutions so you can monitor performance and increase reliability

By Deane Horn
August 14, 2019

The SINUMERIK 840D is quite successful and commonly used in many machine tools for automation of milling, turning, grinding, nibbling, and punching technologies.



Source: Siemens AG

SINUMERIK 840D machine tool automation solution includes:

- Display
- NCU (numeric processing unit – the core processor)
- SIMATIC S7-300 PLC
- SINAMICS drive
- SIMOTICS motors

Drives and motors – everything from a single source



Source: Siemens AG

The SINUMERIK 840D CNC automation solution consists of SIMATIC S7-300 PLC, NCU (the core numerical processing unit for the entire CNC automation solution), SINAMICS drive, and SIMOTICS spindle motor including torque motor, linear motor, and servomotor. Until now, you only had access to a few parameters like data blocks (Siemens DB data is used to create variables or functions for data organization and data transfer), alarms, and messages made available from the SIMATIC S7-300 PLC; the core NCU was inaccessible.



Source: Siemens AG

The NCU, however, is the heart of the entire CNC automation solution. The NCU communicates with the S7-300 PLC, the numeric core kernel, and the drives to provide operating instructions and get feedback. The **Softing Gateway**, [uaGate 840D](#), now gives you direct access to the NCU, so for the first time, you have access to extremely valuable operating and performance parameters. For example, the Softing uaGate 840D gives you access to drive data, axis data, program data, tool data, and specific NCU alarms. As a result, uaGate 840D opens up data like spindle speed, override, actual distance, remaining distance of four axes, temperature,



Source: Siemens AG

torque, and power consumption of all four motors connected to the drive modules in less than 100 msec. This new information can now be used to integrate to third party applications such as HMI, SCADA, MES, or ERP via the OPC UA or the MQTT protocols for optimizing the machine tool process, increasing availability, reducing downtime, improving product quality, and reducing rework.

The Softing [uaGate 840D](#) can also be used to acquire data from older **SINUMERIK 840D CNC automation systems (version 4.3 or newer)**. The uaGate includes a preconfigured data symbol file (.awl file) for the standard use case based on one channel including four axes, and four drives, and the user does not require any specific SINUMERIK know-how for reading the data.

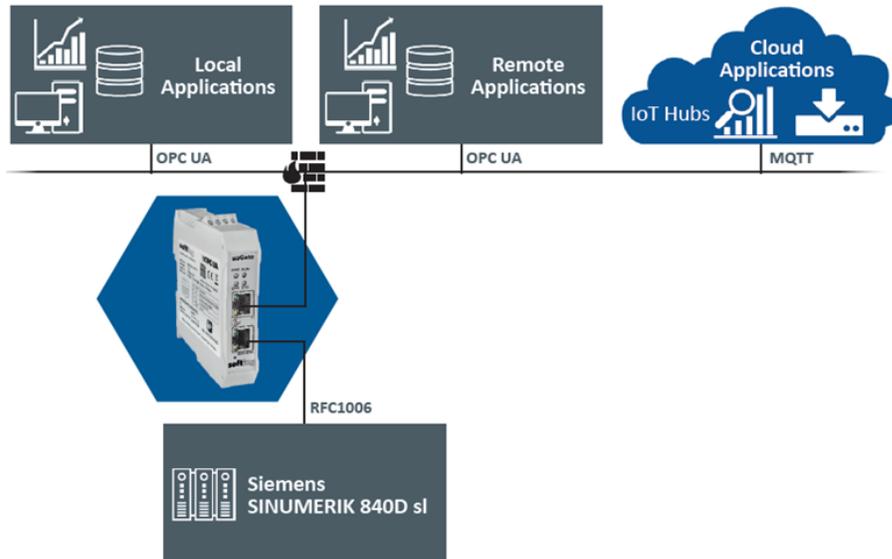


Figure 1: Softing uaGate 840D

A [uaGate](#) simply gets mounted next to each SINUMERIK NCU on a DIN rail and requires 24 VDC power supply. uaGate has two independent Ethernet interfaces, one addressing the CNC machine and the other addressing the IT network. Between these, the gateway acts as a firewall. The configuration is performed in just a few clicks using any web browser and the integrated web server.



Source: Siemens AG

Softing just opened up information from SINUMERIK 840D CNC automation solution because SINUMERIK machine tool users want access to this information to reduce downtime and improve quality. Now customers can have conversations like, "The last time we saw variance in these parameters, the tool broke." Or, "By increasing spindle speed, it's true we can produce more in the short term, but it also breaks more, so now we are optimizing the speed to maximize both production and spindle life."

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