

CIMCO Integration offers DNC-Max Wireless as a turnkey wireless DNC system letting our well-known DNC-Max software connect to your CNC machines through a Wireless network.

DNC-Max Wireless meets the demands of customers who wish to replace their legacy wired and trouble-prone system - perhaps still set up with data switches - or to implement new solutions in workshops where CNCs are frequently relocated: there is no longer an RS-232 cable and no need to rewire each machine in its new position.

Obvious advantages of DNC-Max Wireless are:

1. No data cabling is necessary, except for the short distance from the wireless DNC adaptor to the physical RS-232 CNC port - here fibre optics make the best connection, ensuring a perfect galvanic insulation and a clean transmission in this often noise-prone environment.
2. CNC machine tools may be relocated frequently, but they need not be rewired and usually not even re-configured: identification (e.g. machine no.) and transmission parameters remain unchanged in the current DNC software set-up (.mch-files).

Simply stated, here is how the system works:

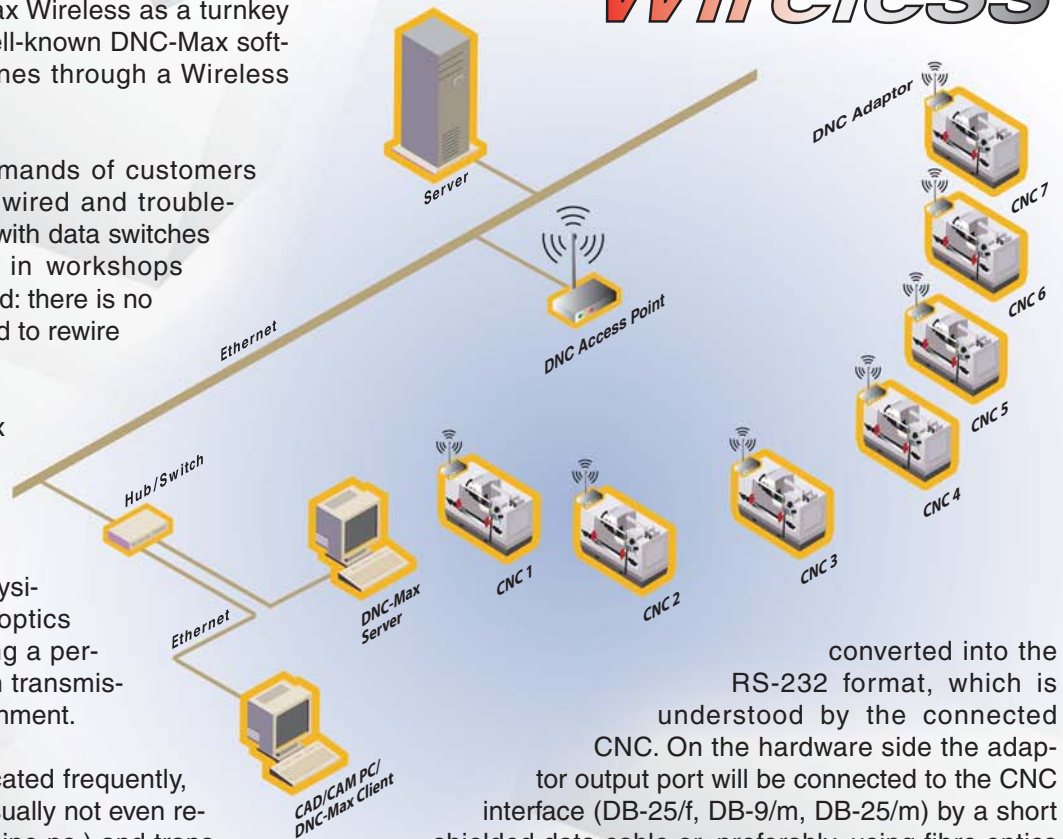
Wireless DNC Access Points

Wireless DNC Access Points are Ethernet hubs that convert the DNC Ethernet communications to wireless IEEE 802.11b(+) signals and vice versa, and are mounted to the network like any other wired Ethernet device (PC, hub, switch, router, etc.).

Wireless DNC Access Points transmit the NC data via a directional or an omnidirectional antenna from/to a wired network to/from the Wireless DNC Adaptors mounted on or near the CNC machine tools in the workshop.

Wireless DNC Adaptors

Wireless DNC Adaptors are equipped with wireless bridges and additional port servers to connect 1, 2 or 4 CNCs. A Wireless DNC Adaptor receives/sends the NC data via its small directional antenna aligned exactly with the antenna of the nearest Wireless DNC Access Point. In the Wireless DNC Adaptor the received radio signals are



converted into the RS-232 format, which is understood by the connected CNC. On the hardware side the adaptor output port will be connected to the CNC interface (DB-25/f, DB-9/m, DB-25/m) by a short shielded data cable or, preferably, using fibre optics ensuring perfect galvanic insulation.

NC data sent from a CNC to be stored on the DNC server pass through the same connection.

Free on-site Survey

Contact our office and we will refer you to a local CIMCO partner who will provide a free on-site survey to determine the very best DNC solution to suit your machine shop and budget.

CIMCO Integration - Competence in DNC Systems

To make the right choice it is important to choose not only the best available DNC solution but also a manufacturer with many years of experience to ensure reliable implementation and after-sales support.

Since 1991 CIMCO Integration has sold more than 10,000 software licences for DNC Systems by experienced CAD/CAM/CNC partners and consultants all over the world.

If you are ready to invest in a DNC system that offers the best price-performance-ratio in the industry, please do not hesitate to contact us.

DNC Max

Wireless

The Wireless DNC-Access Point C-AP 901 is plugged into a switch or a router on your cabled Ethernet network by means of a patch cable. This connects your cabled and your wireless networks.

C-AP 901



To extend the transmission/reception area, the high-performance directional antenna (11.5 dBi) of the C-AP 901 may be dismantled from the protective housing and re-mounted, for example, 2 m above the housing to get a direct 'visual contact' with the Wireless DNC-Adaptors.

Ethernet

C-AP 901 specifications:

- Enhanced data transfer rate up to 22 Mbps
- 10/100 Mbps auto-sensing Fast Ethernet port between Wireless LAN and cabled Ethernet LAN
- Smooth accessibility from cell to cell and to other APs
- Stronger network security with 64/128/256-bit WEP encryption
- Fully 802.11b compatible
- Built-in DHCP server
- Additional operation modes:
AP-to-AP Networking (Bridging), AP-to-Multipoint (Bridging), wireless client, wireless repeater
- Detachable external antenna with reverse SMA connector
- Certificated Wi-Fi compatibility

The directional antenna of the Wireless DNC-Adaptors C-FA 801/2/4 is to be brought exactly into line with the antenna of the Wireless DNC-Access Point C-AP 901. A 'line of sight'

distance of up to 100 m to the Access Point is bridged safely by its gain of 6 dBi and its 3 dB apex angles: horizontal HPBW=60°, vertical HPBW=90°.

Each of the Wireless DNC-Adaptors C-FA 801, 802, and 804 works in bridge mode and converts the received radio signals into the serial RS232-C format that is processed by the CNCs. The high data transfer rate of 22 Mbps (ca. 2.2 MBps) guarantees serial data transmission with the highest baud rate for COM ports - that is 115,200 Bd - even if the data transfer rate is reduced (temporarily) to 10%. The data transmission of several large milling programs has been tested in the reload mode (block transfer with ca. 400 NC data blocks/section) and a DTR of 115,200 Bd: the test results were trouble-free.



DNC-Max transmission



C-FA 804

RS232-C

CNC1
CNC2
CNC3
CNC4

1, 2 or 4 CNCs may be connected to a Wireless DNC-Adapter (C-FA 801/2/4).

The operational reliability of wireless data transmission in workshops with strong electromagnetic interference is not the result of the very high carrier frequency of 2.4 GHz, but the multiple check of data packets performed by the Ethernet TCP protocol. If the data packets cannot be verified perfectly (via header and contents check sums) they are rejected and sent again until the check sums match. This verification applies to both the correct address (i.e. IP address of the CNC machine tool) and the complete content of the message (e.g. the NC program).

To prevent unauthorized access to the NC data transmitted by the wireless network, the integrated WEP (Wired Equivalent Privacy) algorithm with key lengths of optional 64-/128-/256-bits and RC4 encryption may be activated.

With DNC-Max Wireless Cimco Integration offers a secure and trouble-free DNC system - **without data cables**.

CIMCO Co.

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