

Programming
via the
ARCNET Bus

Programming System

907 PC 331

Programming and Test Software

**ABB Schalt-
und Steuerungstechnik**



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ARCNET driver integration in 907 PC 331

1 General description

With the existing drivers for expansion of the programming and test software 907 PC 331 it is possible to program the controllers of the series Advant Controller 31 with integrated ARCNET coupler via the ARCNET bus. For this purpose, two variants are possible:

Variante 1: PC with integrated ARCNET card PC130E (refer to figure 1)

The existing driver was created and tested with the ARCNET card ARCNET-PC130E (manufacturer: SMC), which can be obtained from ABB Schalt- und Steuerungstechnik GmbH.

Ordering data:

| | |
|---------------|---|
| Type: | PC130E |
| Designation: | ARCNET 8-Bit Coax-Karte 130E CMC-C0600 (ARCNET 8 bit Coax card 130E CMC-C0600) |
| Order Number: | GATS 1101 50 R0001 |
| Price: | approx. 280,- DM |

Variante 2: Notebook with coupler 07 NB 96 connected to parallel printer interface. The coupler voltage supply is provided via the Notebook PC keyboard socket (refer to figure 2).

Ordering data:

| | |
|-----------------|--|
| Type: | 07 NB 96 |
| Designation: | Koppler für Notebook-PC an PDnet / Busanschluß KOAX (coupler for Notebook PC in PDnet / bus connector COAX) |
| Bestell-Nummer: | GATS 1101 48 R0001 |
| Price: | approx. 850,- DM |

2 Contents of the floppy disk

The floppy disk **PC33ARC** contains the following files:

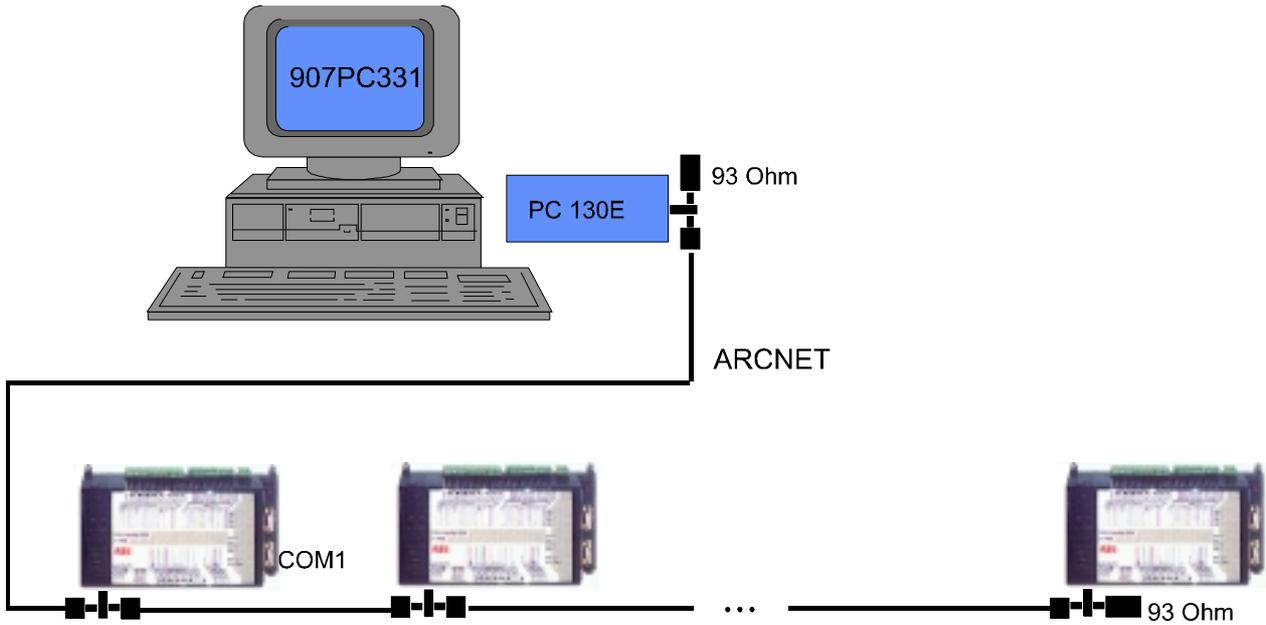
| | |
|-------------|--|
| PC33ARC.EXE | - ARCNET driver for PC with ARCNET card PC130E |
| NB33ARC.EXE | - ARCNET driver for Notebook with 07 NB 96 |
| ARCNET.CFG | - ARCNET configuration file |
| ARCSPS.EXE | - Program for changing the PLC ARCNET subscriber number from 907 PC 331 |
| A.BAT | - Batch file for calling ARCSPS.EXE and returning to 907 PC 331 with EXIT |
| PCARC.DOC | - this manual |

The file **PC33ARC.EXE** is used as driver for a PC with integrated PC ARCNET card PC130E.

The file **NB33ARC.EXE** is used as driver for a Notebook with coupler connected to the parallel printer interface.

Programming with 907 PC 33 via ARCNET

Variant 1: Tower/Desktop PC with PC ARCNET card PC 130E

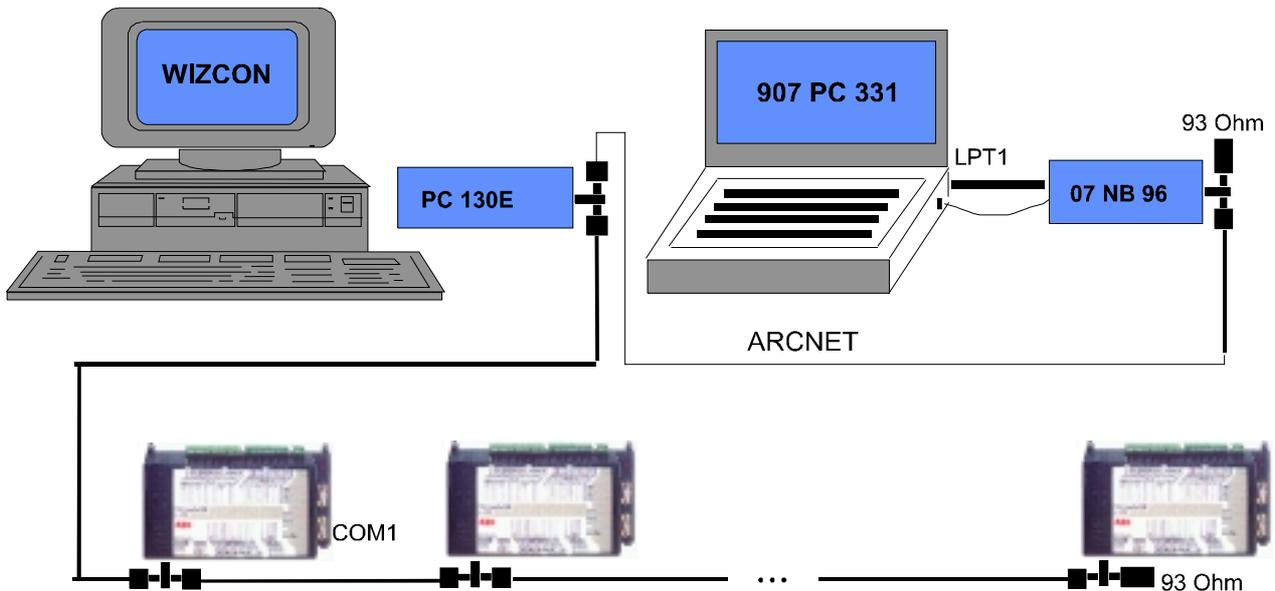


CAUTION: No device may be connected to port COM1 of the PLC!
No other ARCNET subscriber with terminal functions is allowed to communicate with the PLC!

Figure 1: Programming via ARCNET with PC

Programming with 907 PC 33 via ARCNET

Variant 2: Notebook with 07 NB 96 at LPT1



CAUTION: No device may be connected to port COM1 of the PLC!
No other ARCNET subscriber with terminal functions is allowed to communicate with the PLC!

Figure 2: Programming via ARCNET with Notebook

3 Installing the driver

3.1 Installing the driver on PC with PC130E

For installing the driver perform the following steps:

3.1.1 Installing ARCNET card and driver software

The PC ARCNET card must be configured and installed according to the descriptions given in the card's user manual.

The files on the floppy disk must be copied to the directory containing the programming software 907 PC 331 (e.g. C:\ABB-SPS\AC31*.*)).

3.1.2 Configuring the PC ARCNET card

The configuration data of the PC ARCNET card have to be entered in the file **ARCNET.CFG** using an ASCII editor (e.g. the DOS editor EDIT.COM).

The file **ARCNET.CFG** is represented as follows:

```
seg_sps=0
off_sps=0
sps_arc=6
pc_arc=1
adresse=53248
port=736
interrupt=5
```

CAUTION:The structure of the file must not be changed.

The parameters **seg_sps** and **off_sps** are used for entering the PLC ARCNET address and must not be changed.

The parameter **sps_arc** contains the current PLC ARCNET subscriber number. The required number (**1...255**) can be entered here before starting the programming software. The parameter is only used for the programming software 907 PC 331 without ARCNET menu.

The parameter **pc_arc** contains the PC ARCNET subscriber number (**1...255**), which is set on the PC ARCNET card using the DIL switches. The number is read out and automatically entered.

The parameter **adresse** is the RAM address of the PC ARCNET card. Default value: $53248_D = D000_H$. The value must be entered as decimal value.

The parameter **port** is the I/O port address, which is set on the PC ARCNET card. The entry must be equal to the DIL switches. Default value: $736_D = 2E0_H$.

The parameter **interrupt** is the interrupt request number (IRQx), which is set on the PC ARCNET card. Default value: interrupt 5.

3.1.3 Starting the software

The programming software is started by calling the program PC33ARRC.EXE. The configuration data are read in and the interrupt drivers for the ARCNET are loaded. After successful driver installation, the current ARCNET subscriber addresses of the PC and the PLC are displayed. The PLC ARCNET subscriber number is only valid for the programming software 907 PC 331 without ARCNET menu.

Here, the program can be aborted by pressing the <ESC> key. The actual programming software 907 PC 331/MPST.EXE is started by pressing any other key or after a short waiting time.

Example: C:\ABB-SPS\AC31>pc33arc<CR> (enter underlined characters).

3.2 Installing the driver on Notebook with 07 NB 96

For installing the driver perform the following steps:

3.2.1 Connecting the 07 NB 96 and installing the driver software

Switch-off your computer.

Localize the parallel printer interface at your PC. The printer interface is a 25-pin SUBD socket on the rear side of your PC. If there are several printer interfaces available, select the port which the operating system calls LPT1.

Dongles are not tested in connection with the 07 NB 96 and must not be used at the same interface.

Insert the extension cable supplied into the free printer port socket and connect the 07 NB 96 to it. The extension cable provides more flexibility and protects the printer interface against increased mechanical loading.

Now localize your Notebook keyboard socket. Check, if the plug at the spiral cable matches with the keyboard socket and then insert it.

The connection is now finished and you can switch-on your computer.

Notes:

It is recommended to connect or disconnect the 07 NB 96 only with switched-off computer. However, if it is unavoidable to leave the computer switched-on, connect the spiral cable last or disconnect it first.

Never disconnect the 07 NB 96 while a program is running which uses the 07 NB 96. This may cause a system crash.

Possibly, programs leave the printer interface and the interrupt system unusable in case of incorrectly exiting the program. In this case you must reboot your computer to set the 07 NB 96 into operation.

The files on the floppy disk must be copied to the directory containing the programming software 907 PC 331 (e.g. C:\ABB-SPS\AC31*.*)

3.2.2 Configuring the 07 NB 96

The configuration data of the PC ARCNET card have to be entered in the file **ARCNET.CFG** using an ASCII editor (e.g. the DOS editor EDIT.COM).

The file **ARCNET.CFG** is represented as follows:

```
seg_sps=0
off_sps=0
sps_arc=6
pc_arc=1
adresse=53248
port=736
interrupt=5
```

CAUTION: The structure of the files must not be changed.

The parameters **seg_sps** and **off_sps** are used for entering the PLC ARCNET address and must not be changed.

The parameter **sps_arc** contains the current PLC ARCNET subscriber number. The required number (**1...255**) can be entered here before starting the programming software. The parameter is only used for the programming software 907 PC 331 without ARCNET menu.

The parameter **pc_arc** contains the ARCNET subscriber number intended for the Notebook. This number is transferred to the 07 NB 96 during initialization.

The parameter **adresse** is not significant for the 07 NB 96.

The parameter **port** is not significant for the 07 NB 96.

The parameter **interrupt** is not significant for the 07 NB 96.

3.2.3 Starting the software

The programming software is started by calling the program NB33ARRC.EXE. The configuration data are read in and the interrupt drivers for the ARCNET are loaded. After successful driver installation, the current ARCNET subscriber addresses of the PC and the PLC are displayed. The PLC ARCNET subscriber number is only valid for the programming software 907 PC 331 without ARCNET menu.

Here, the program can be aborted by pressing the <ESC> key. The actual programming software 907 PC 331/MPST.EXE is started by pressing any other key or after a short waiting time.

Example: C:\ABB-SPS\AC31>nb33arc<CR> (enter underlined characters).

4 Changing the PLC ARCNET subscriber number

4.1 ARCNET subscriber number for 907 PC 331 without ARCNET menu

If the PLC ARCNET subscriber number should be changed, you have to select the menu item:

Main menu/DOS-shell

After this, call the file **a.bat**. The current PLC ARCNET number is displayed and the entry of a new one is expected. After the entry, the dialog is closed and the programming software is available again.

The entry is aborted by pressing <CTRL><C>. The old number is then retained. The request 'Abort batch processing (Y/N)?' has to be answered with "N" or "n". If you answer with "Y" or "y", you have to enter "exit<CR>" to return to the programming software.

Instead of **a.bat**, it is also possible to call the file **arcspsex.exe** and then entering **exit**.

Example:

Main menu/1 DOS-shell

C:\ABB-SPS\ACS31>a<CR>

Current PLC ARCNET address: 6 new address: _

Input of the new address e.g. 7

Current PLC ARCNET address: 6 new address: 7<CR>

Main menu/1 DOS-shell

4.2 ARCNET subscriber number for 907 PC 331 with ARCNET menu

In the programming software 907 PC 331 with ARCNET menu, the PLC ARCNET subscriber number is stored with the project data and therefore is immediately available when selecting a project.

If a new project is created or a project is selected, which has been created with the programming software 907 PC 331 without ARCNET menu, the PLC ARCNET subscriber number 255 is entered.

If the PLC ARCNET subscriber number should be changed or entered for the new project, you have to select the menu item:

Main menu/Config. PC33/7 ARCnet address

The current PLC ARCNET subscriber number is displayed in a window and the input of the new address is expected. The address is applied by pressing <CR>.

5 Restrictions

For programming using the programming software 907 PC 331 the following restrictions are valid:

1. The programming interface COM1 of the PLC must not be assigned (neither in active nor in passive mode)!
2. After performing a cold or warm start, the PLC always signalizes itself via the serial interface. A cold or warm start can be executed with the PC via ARCNET. It is not signalized, if the function was really executed.
3. The software requires the operating system MS-DOS, version 6.0 or higher.
4. The serial interface (COM port) set in the programming software 907 PC 331 must not be assigned (e.g. with mouse or modem).
5. No further ARCNET subscriber is allowed to access to the PLC using the 6F_H protocol (DIN = 111 = 6F_H) (e.g. ARCNET driver for WIZCON/OS2).

6 Test program PCARCTST.EXE

The program PCARCTST.EXE is used for testing the connection PC↔PLC. The program uses the data entered in the file **ARCNET.CFG**.

The terminal command for requesting the status "ST<CR>" is sent periodically to the PLC specified with the parameter **arc_sps**. If the connection to the controller is OK, the response telegram is displayed on the screen.

Call: C:\ABB-SPS\AC31>pcarctst<CR> (enter underlined characters).

The program is exited by pressing the <ESC> key.

If the programming software should run on a PC where the visualization software INTOUCH (with KLINKMANN driver) runs under WINDOWS 3.x, the following procedure is valid:

- Quit INTOUCH and WINDOWS 3.x to deactivate the KLINKMANN driver
- Start the program PCARCTST.EXE to read out possibly existing ARCNET telegrams
- Start the programming software

If the PC is rebooted, it is not necessary to start the program PCARCTST.EXE.



Printed on chlorine-free bleached paper

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Printed in the Federal Republic of Germany (08.99)