

Application Note

ACG 13.56 MHz RF PC Handheld Reader Module H102022 RF PC Handheld Reader

Firmware: 0.1

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1 Scope

The ACG 13.56 MHz RF PC Handheld Reader Module is a read write device that supports a broad range of transponders. It is designed to communicate with ISO15693, Tagit®, Icode®, SR176, Mifare® Ultralight, ISO14443 Type A and B and FELICA transponders. With its integrated antenna and compact flash type 2 connector it is ready to use and easily connect into a handheld, laptop or tablet PC.

Using a PCMCIA adapter it can be connected into a PCMCIA slot type 2. The unit includes a device driver for Windows 98, Me, 2000, NT Service Pack 4 and XP.

This document describes the installation of the device driver and an easy access to the RF PC Handheld Reader Module. The command set is described in detail in the document ACG 13.56 MHz Multitag Reader Module and is not listed here.

2 Hardware



Figure 2-1: CF Reader Module hardware

The ACG 13.56 MHz RF PC Handheld Reader Module can be connected directly to a compact flash type 2 slot or via adapter to a PCMCIA type 2 slot.

2.1 Remarks

The antenna area must be free from any metal. A metal will prohibit the antenna field and less reading performance is reached.

3 Software

The CF reader module is compatible to the ACG 13.56 MHz Multitag Reader Module. Please refer to the document ACG 13.56 MHz Multitag Reader Module, H102022 [1] for more details of the command set.

3.1 Installation of the PCMCIA driver

The RF PC Handheld Reader Module can be connected to a laptop or a PC using an adapter of PCMCIA type 2.

1. First time the module is plugged into the slot the user will be prompt to install a driver.
2. Follow the instructions on the screen.
3. Click on 'Have Disk...' to define the driver location manually.
4. Using Windows 98 or Me go to folder 'ACG CFReader\Win9x' and double-click on 'ACGCFR.inf'.
5. Using Windows 2000, NT4 Service Pack4 or XP go to folder 'ACG CFReader\WINNT' and double-click on 'ACGCFR.inf'
6. Finish the installation

The system has loaded all necessary drivers of the ACG 13.56 MHz CF Reader Module. Using a terminal program (e.g. HyperTerminal) the module can be accessed simply.

3.1.1 HyperTerminal settings

First you have to connect to the correct COM port. Normally the system sets up COM 4 or COM 5 for the PCMCIA slots. The baud rate depends on the startup settings of the reader device. Default is 9600 baud.

Description
8 data bits
No parity bit
1 stop bit
No flow control

Figure 3-1: Communication settings

3.2 Terminal program of Pocket PC

Pocket PC has not included a simple terminal program like HyperTerminal. Following steps create a connection to the RF PC Handheld Reader Module. Pocket PC internally detects all CF or PCMCIA slots and can manage them without any driver installation.

1. Plug the RF PC Handheld Reader Module into the CF slot.
2. Click on 'start->Settings'
3. Go to tab 'connections' and click on 'connection with the internet'
4. Create a new connection
5. Type in a new name of the connection (e.g. 'ACG')
6. Go to tab 'modem' and create a new modem connection
7. Type in a name
8. Choose as modem 'ACG_Austria-ACG_CF_Reader' and set baud rate to 9600
9. Change to modem settings to following: data bits 8, parity no, stop bit 1, no flow control
10. Enable all checkboxes below and click 'OK'
11. Click on continue and disable both checkboxes and finish the set up.
12. Run new connection.
13. Click ok when the system prompts for a login.
14. A terminal window appears
15. Type in any command

Refer to the ACG 13.56 MHz Multitag documentation for a detailed description of the command set.

3.3 Writing your own Application in Visual C++

This example illustrates the access to a com port of a handheld. A handheld normally sets the serial port of the CF slot to 4, 5, or 6.

```
// set the appropriate com port
CString m_Serial = "com4";
bool m_contReceiveMode = false;
HANDLE hComm;

// Open communication
hComm = CreateFile(m_Serial.GetBuffer(), GENERIC_READ |
GENERIC_WRITE, 0, NULL, OPEN_EXISTING,
FILE_FLAG_WRITE_THROUGH, NULL);
if (hComm == INVALID_HANDLE_VALUE)
{
    printf("error\n");
    hComm = NULL;
}
else
{
    COMMTIMEOUTS noblock;
    DCB dcb;
```

```
// set communication timeout
GetCommTimeouts(hComm, &noblock); // get communication
timeouts
if (m_contReceiveMode == false)
{
    // get answer (ReadFile waits for answer until timeout)
    // use timeouts, because it is easier to handle
    noblock.ReadTotalTimeoutConstant = 2000; // 2 seconds
timeout
    noblock.ReadTotalTimeoutMultiplier = MAXDWORD;
    noblock.ReadIntervalTimeout = MAXDWORD;
}
else
{
    // get answer for polling (immediate return from ReadFile)
    noblock.ReadTotalTimeoutConstant = 0;
    noblock.ReadTotalTimeoutMultiplier = 0;
    noblock.ReadIntervalTimeout = MAXDWORD;
}
if (SetCommTimeouts(hComm, &noblock) == 0) // set
communication timeouts
    printf("error\n");

// set communication state
GetCommState(hComm, &dcb);
dcb.BaudRate = 9600;
dcb.ByteSize = 8;
dcb.fParity = FALSE;
dcb.StopBits = ONESTOPBIT;
dcb.fDtrControl = DTR_CONTROL_ENABLE;
dcb.fRtsControl = RTS_CONTROL_DISABLE;

if (SetCommState(hComm, &dcb) == 0)
    printf("error\n");
}

/* type in your application here*/

// close communication and free handle
CloseHandle(hComm);
```

Figure 3-2: Source code of com settings

4 References

[1] ACG 13.56 MHz Multitag Reader Module Documentation, H102022