User Manual Addendum

CANgine

No. 1

Bluetooth® Option

ess
embedded
systems
solutions

Edition 3
May 2006

ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau

The information given in this document was compiled and checked carefully. Nevertheless ESS assumes no liability for any mistakes. ESS also assumes no liability for any damage resulting from use of this manual or products described herein.

ESS reserves the right to make changes on information given in this document and on features of products described herein without prior notification.

Publication and reproduction of this document or parts of it only with written agreement of ESS.

Edition	Date	State
3	May 2006	Blink Code not connected
2	April 2005	Corrections
1	August 2004	first edition

ESS Embedded Systems Solutions GmbH
Industriestr. 15
D-76829 Landau
(49) 6341 3487-0
(49) 6341 3487-29
info@ESSolutions.de
www.ESSolutions.de

www.CANgine.com

Contents

1 Introduction

Thank you for choosing a product of our CANgine product family. The CANgine family is based on high performance 8 bit microcontrollers with integrated full CAN interface and flash memory. With these products you are able to build extremely small but powerful CAN units.

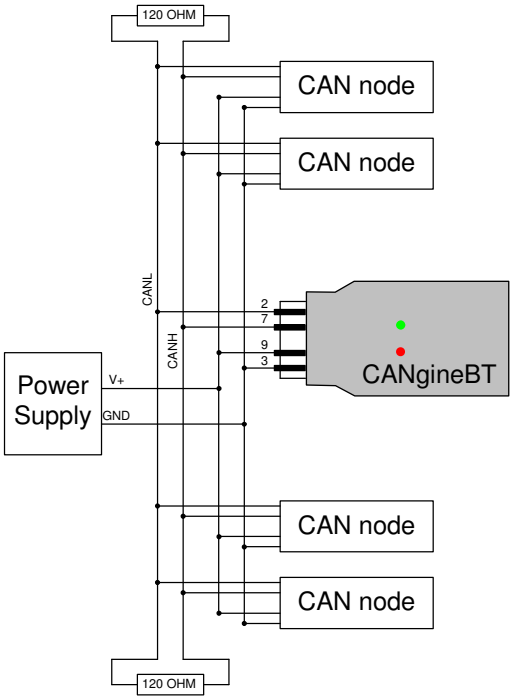
With the option BT of CANgine-No.1 communication with the host uses the bluetooth SSP (serial port profile) instead of a RS232 serial link. As any standard CANgine CANgineBT is powered via the CAN connector according to the recommendations of CiA (CAN in Automation).

In it's standard case, CANgineBT-No.1 only measures 85 x 36 x 20 mm³ (3.32 x 1.4 x 0.79 inch³). If this does not fit for some applications CANgineBT-No.1 can be delivered in other cases or without case in customer specific variants. Due to the modular concept of the CANgine products in hardware and software this is possible even at lower production volumes. Email or call our sales department if you have special requirements.

This manual only describes specific functions of the bluetooth option. For the normal behaviour of CANgine-No.1 please refer to the CANgine-No.1 manual.

2 Installation

The picture shows how to connect CANgine to a CAN network. Power supply is connected via pin 9 (+) and pin 3 (GND) of the CAN connector as proposed by CiA. The maximum supply voltage is 30 V. Applying higher voltages will lead to damages. Pay attention to the terminating resistors (120 Ohm) at both ends of the CAN bus.



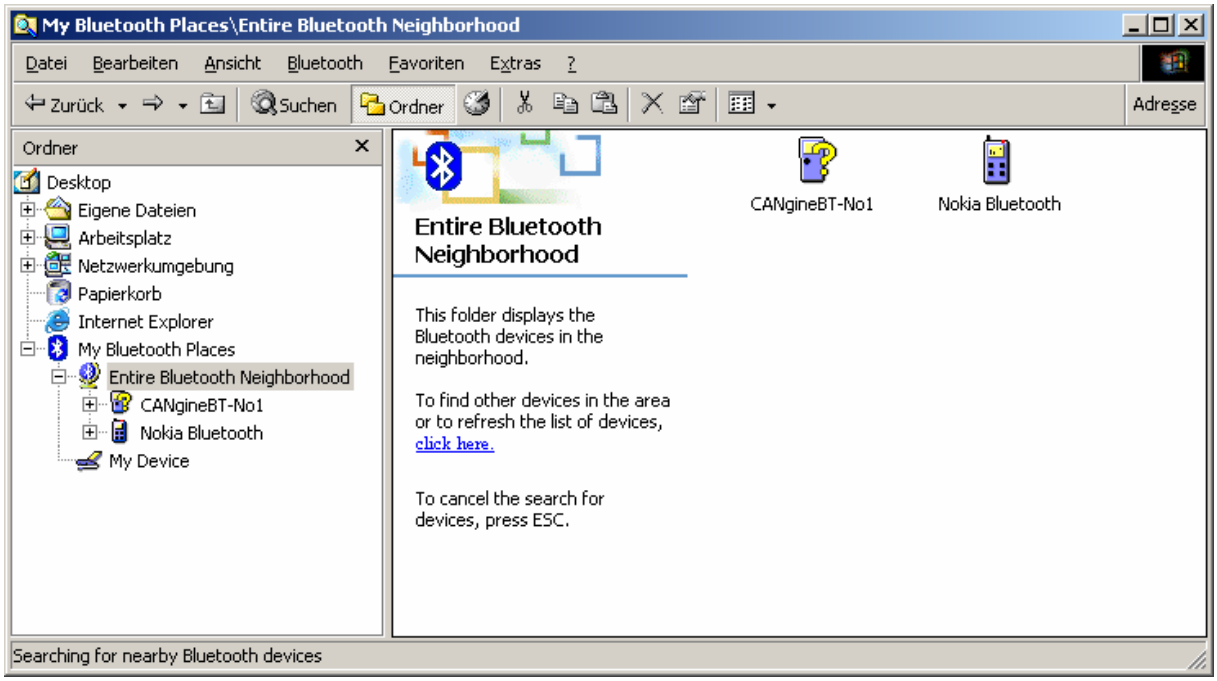
After applying power CANgineBT-No.1 is ready fopr operation and waits for a connection request from a Bluetooth device. If the Bluetooth area is scanned the modul reports "CANgineBT-No.1" with SPP service. Also the Bluetooth address is reported. With the help of this address a connection is possible without previous scan.

When waiting for a Bluetooth connection CANgineBT-No. 1's error LED flashes five times to signal "no Bluetooth connection". When a connection is established successfully the red LED switches off.

3 Establishing Communication

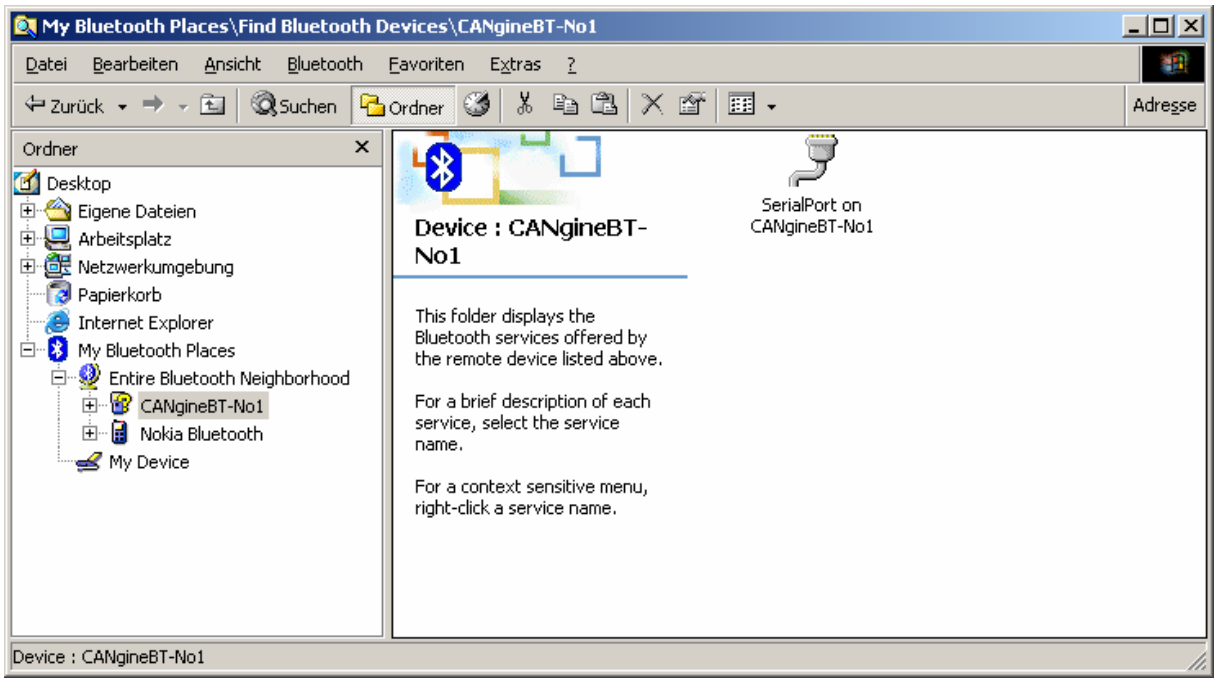
Establishing a Bluetooth connection is exemplified in the next chapters using a standard USB Bluetooth adapter. After scanning the CANgineBT-No.1 is reported as shown in the screenshot.

ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau

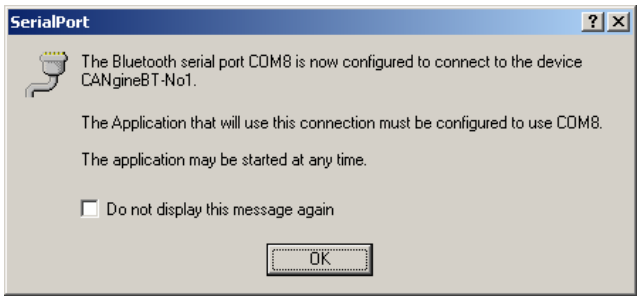


Clicking with the right mouse button on the CANgine symbol and selecting properties shows the Bluetooth address of the CANgineBT-No.1.

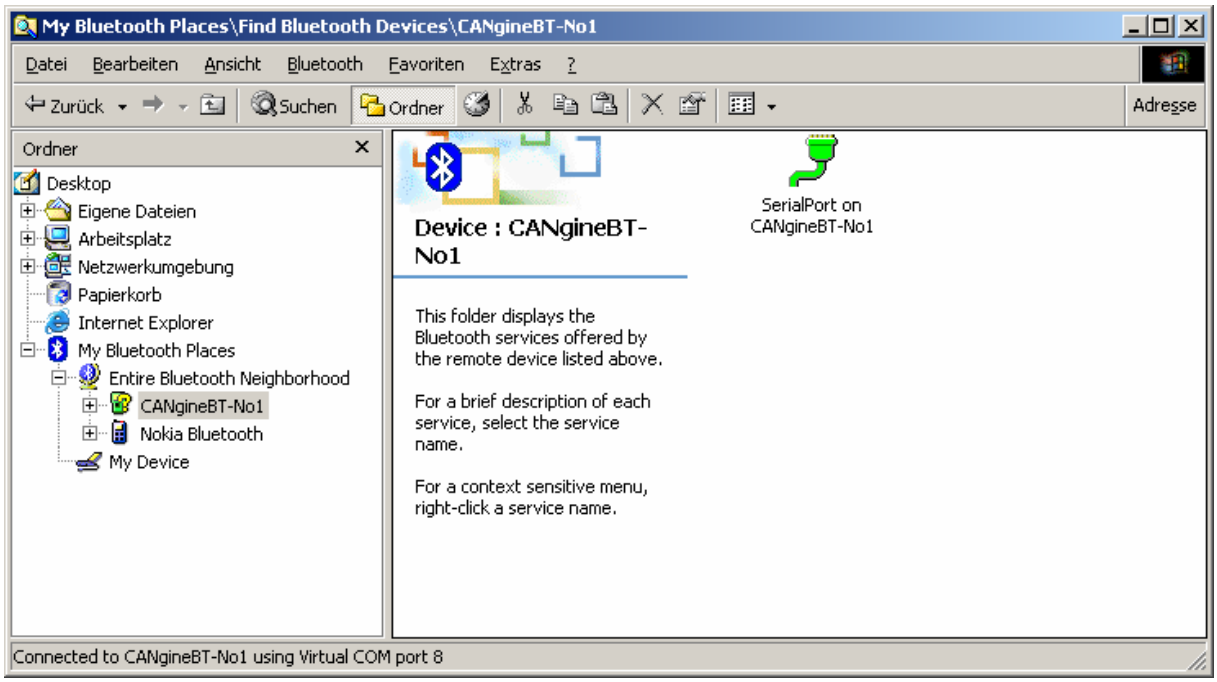
Double clicking on the CANgine symbol in the neighbourhood screen shows the services offered by the CANgineBT. This is only the SPP (serial port profile) service.



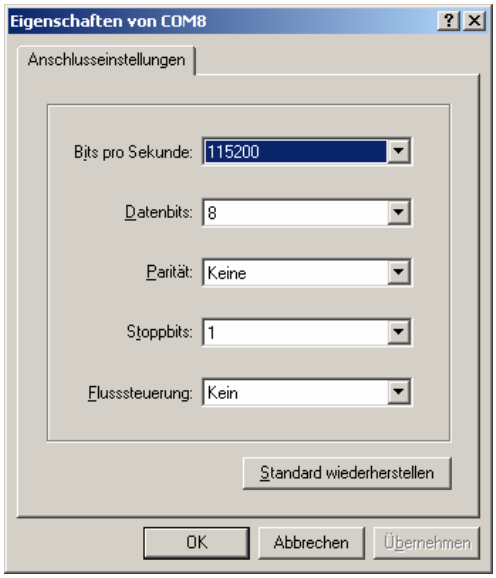
Double clicking the Serial port icon in the device screen establishes a connection between a virtual serial port on the PC and the CANgineBT-No.1. If the software asks for a PIN enter 0000. In the software used in this example the connected device is marked in green to signal the successful connection. If you don't know the COM port number (in this example it is shown by an own window) try to explore the propertie of the connected device (right mouse click).



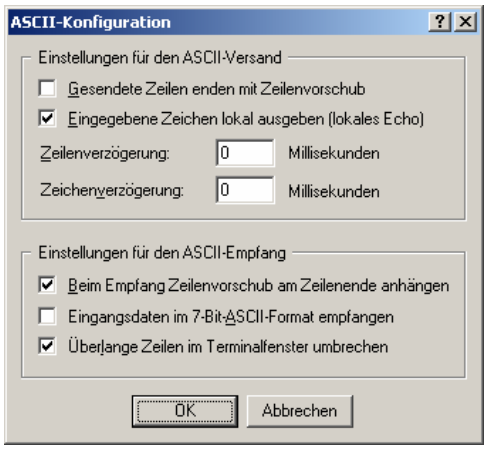
ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau



To communicate with CANgineBT-No.1 start a terminal program like Hyperterminal and set the parameters to 115.200 bps, 8 data bits, no parity, 1 stop bit and no flow control.



Due to better performance CANgineBT-No.1 like CANgine-No.1 sends no echo characters. For your convenience while testing set the communication parameters in your terminal program to local echo on sending and adding a linefeed character on receiving.

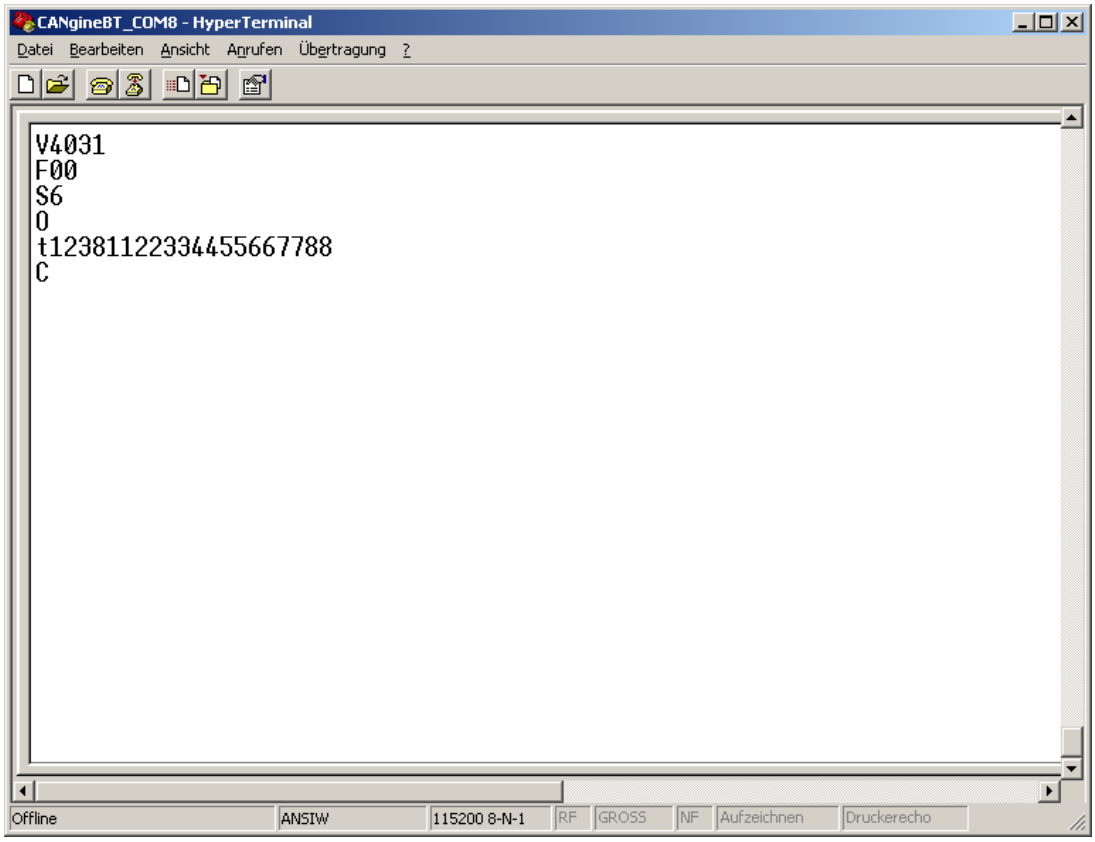


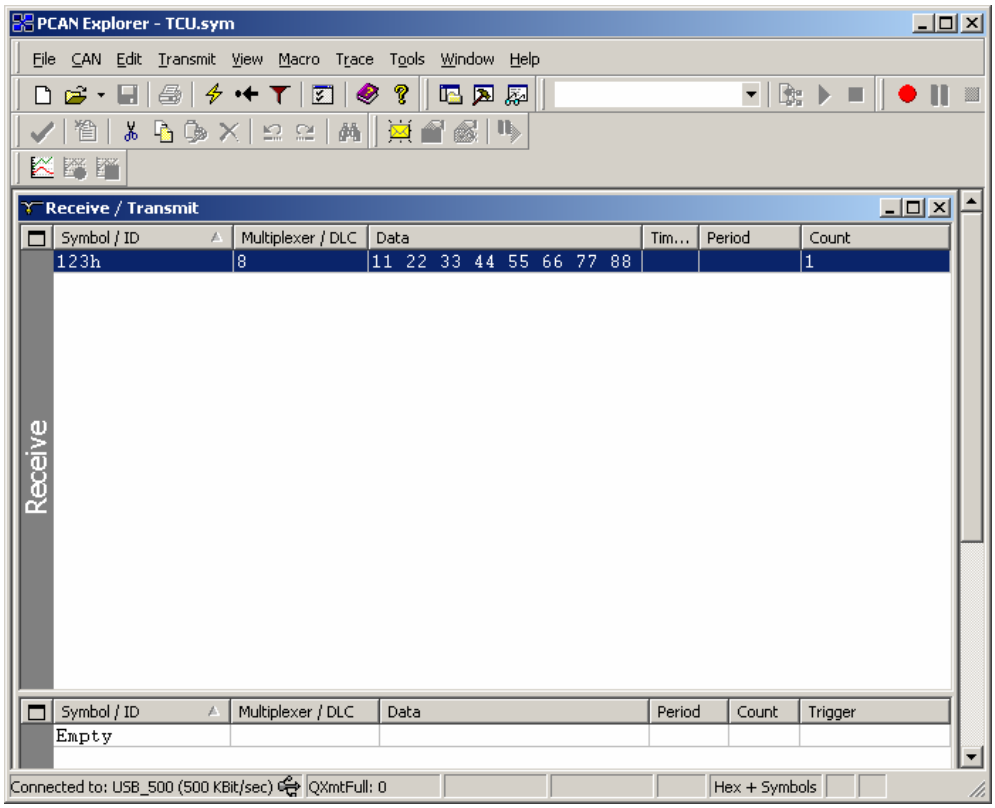
If you change the communication parameters of hyperterminal you have to disconnect the COM8 device. This may also disconnect the Bluetooth connection (the red LED on CANgineBT flashes 5 times). If you re-connect in hyperterminal your Bluetooth software should also re-connnect the Bluetooth connection (the red LED on CANgineBT switches off).

After having established the connection with the right communication parameters enter the following commands:

Command	**Meaning**	**Answer from CANgine**
[CR]	Initialize communication with CANgine	[CR]
V[CR]	Ask for version number	V4031[CR]
F[CR]	Ask for error information	F00[CR]
S6[CR]	Set CAN Baudrate to 500 kbit/s	[CR]
O[CR]	Open CAN channel	[CR]
t...[CR]	Send a standard CAN Frame	[CR]; Your CAN monitor should show a received message. If no CAN is connected the CANgine enters CAN error mode.
C[CR]	Close CAN channel	[CR]

ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau


CANgineBT_COM8 - HyperTerminal
Datei Bearbeiten Ansicht Anrufen Übertragung ?
V4031
F00
S6
O
t12381122334455667788
C
Offline
ANSIW
115200 8-N-1
RF
GROSS
NF
Aufzeichnen
Druckerecho


PCAN Explorer - TCU.sym
File CAN Edit Transmit View Macro Trace Tools Window Help
Receive / Transmit
Symbol / ID
Multiplexer / DLC
Data
Tim...
Period
Count
123h
8
11 22 33 44 55 66 77 88
1
Receive
Symbol / ID
Multiplexer / DLC
Data
Period
Count
Trigger
Empty
Connected to: USB_500 (500 KBit/sec)
QXmtFull: 0
Hex + Symbols

4 Pinning of CAN Connector

Pin	Signal	Pin	Signal
1	nc	6	GND
2	CANL	7	CANH
3	GND	8	nc
4	nc	9	+Vcc
5	nc		

5 Technical Data

Power supply	7 .. 30	VDC
Supply current	100 (typ.)	mA
Internal micro controller	Clock: 40 Full CAN 2.0B Interface	MHz
CAN Transceiver	82C251	
CAN connector	Sub-D 9 pin male	
CAN baud rate	10 .. 1.000	kBit
Display	RUN and ERROR LEDs	
Size	84 x 35.6 x 20.2	mm^3
Weight	43	g
Temperature range	0 .. +55	℃

ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau

Disclaimers

Life support

These products are not designed for use in life support appliances, devices or systems where malfunction of these products can reasonably be expected to result in personal injury. ESS Embedded Systems Solutions customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify ESS Embedded Systems Solutions for any damages resulting from such application.

Right to make changes

ESS Embedded Systems Solutions reserves the right to make changes, without notice, in the products, and/or software, described or contained herein in order to improve design and/or performance. ESS Embedded Systems Solutions assumes no responsibility or liability for use of any of these products , conveys no license or title under any patent, copyright, or mask work to right to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified.

ESS Embedded Systems Solutions GmbH
Industriestrasse 15
D-76829 Landau
Germany
Phone +49 (0) 6341 34870
info@ESSolutions.de