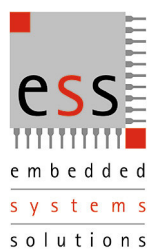


# User Manual Addendum

**CAN***gine*

**FMS**

**Bluetooth® Option**



# CANgine FMS Bluetooth Option User Manual

April 2005  
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ESS Embedded Systems Solutions GmbH  
Industriestr. 15  
D-76829 Landau  
(49) 6341 3487-0  
(49) 6341 3487-29  
[info@ESSolutions.de](mailto:info@ESSolutions.de)  
[www.ESSolutions.de](http://www.ESSolutions.de)

[www.CANgine.com](http://www.CANgine.com)



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## 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-FMS 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-FMS only measures 85 x 36 x 20 mm<sup>3</sup> (3.32 x 1.4 x 0.79 inch<sup>3</sup>). If this does not fit for some applications CANgineBT-FMS 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-FMS please refer to the CANgine-FMS manual.

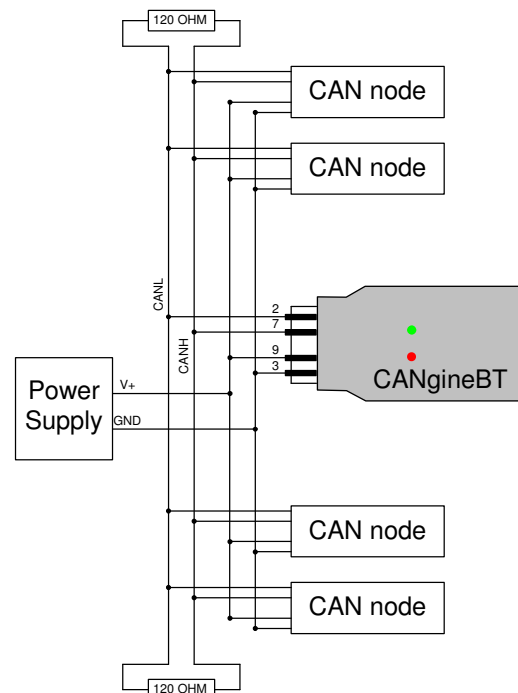


## 2 Installation

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.

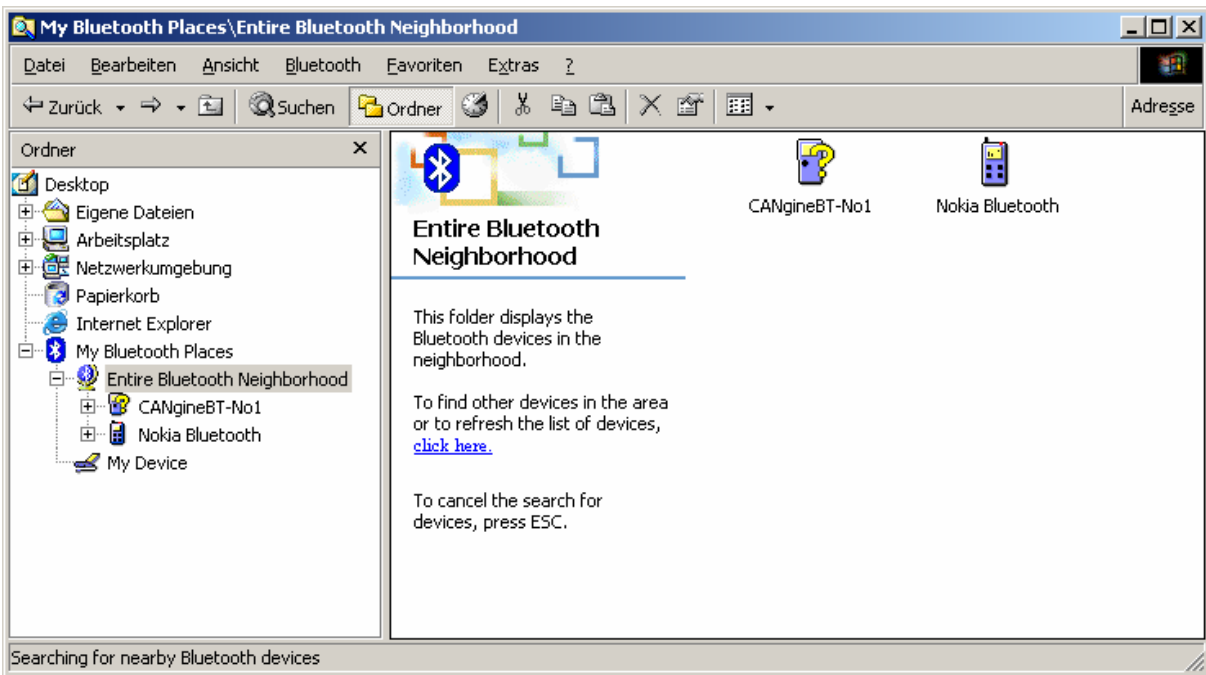
After applying power CANgineBT-FMS is ready for operation and waits for a connection request from a Bluetooth device. If the Bluetooth area is scanned the modul reports "CANgineBT-FMS" with SPP service. Also the Bluetooth address is reported. With the help of this address a connection is possible without previous scan.

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

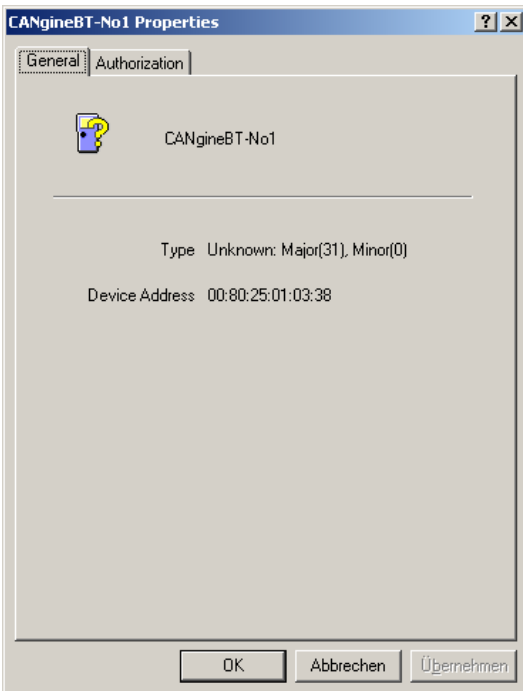


## 3 Establishing Communication

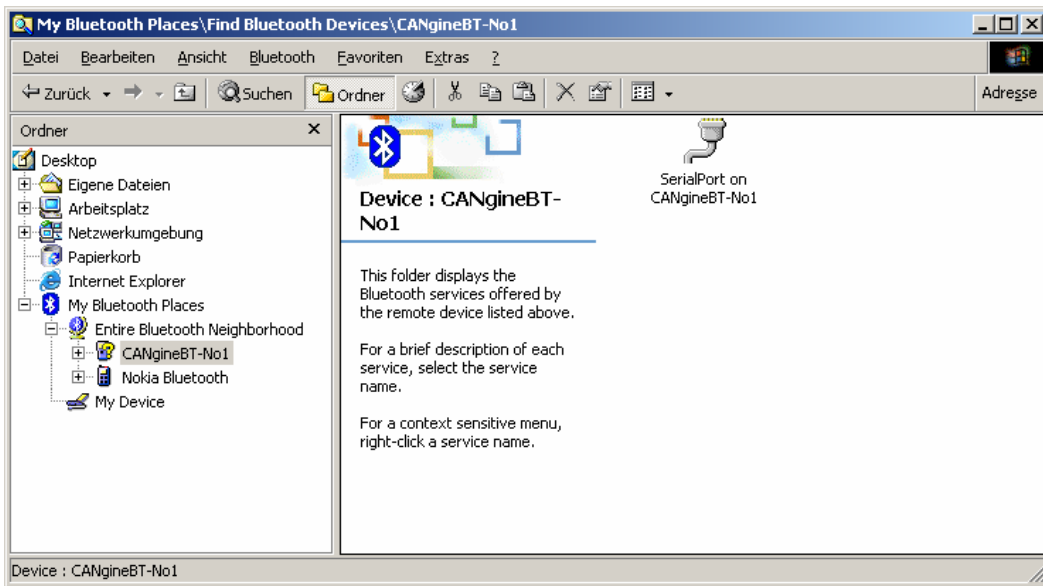
Establishing a Bluetooth connection is exemplified in the next chapters using a standard USB Bluetooth adapter. After scanning the CANgineBT is reported in the Bluetooth neighbourhood. The following screen shots are showing a CANgineBT-No1 instead of CANgineBT-FMS but establishing a connection is the same for both devices.



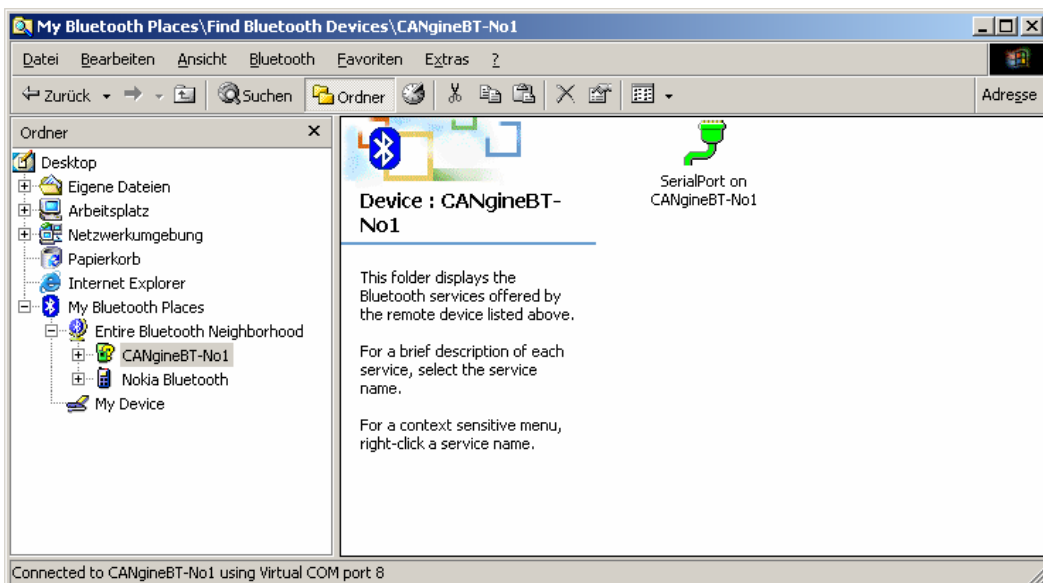
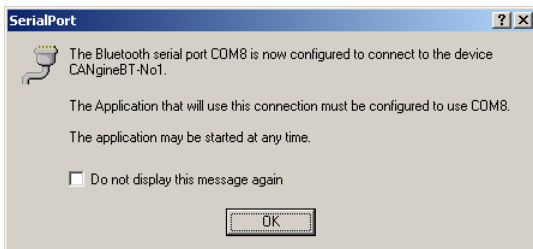
Clicking with the right mouse button on the CANgine symbol and selecting properties shows the Bluetooth address of the CANgineBT-FMS.



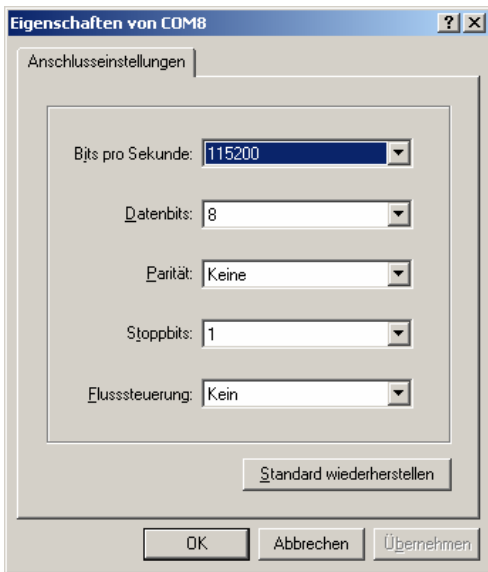
Double clicking on the CANgine symbol in the neighbourhood screen shows the services offered by the CANgineBT. This is only the SPP (serial port profile) service.



Double clicking the Serial port icon in the device screen establishes a connection between a virtual serial port on the PC and the CANgineBT-FMS. 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 properties of the connected device (right mouse click).



To communicate with CANgineBT-FMS 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.



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

Command	Meaning	Answer from CANgine
[CR]	Initialize communication with CANgine	CANgine FMS in configuration mode[CR]
V[CR]	Ask for version number	CANgineBT-FMS V1045[CR]
F[CR]	Ask for error information	F00[CR]

Further commands and instructions to work with CANgine-FMS are found in the users manual of CANgine-FMS.

## 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 polig Stecker	
CAN Baudrate	10 .. 1.000	kBit
Anzeigen	RUN and ERROR LEDs	
Größe	84 x 35.6 x 20.2	mm <sup>3</sup>
Gewicht	43	g
Temperaturbereich	0 .. 55	°C

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

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