BLUETOOTH®
GATEWAY

SECOP

OPERATING INSTRUCTIONS

TOOL**4**COOL®
Flexible control settings

TOOL4COOL®

Flexible control settings

TABLE OF CONTENTS

1.
INTRODUCTION

1.1
General Description

The Secop Bluetooth® gateway is used in the connection between a controller and a computer when running Tool4Cool® software.

The gateway is equipped with a high-performance rechargeable battery, so an external power source is not required. This makes the gateway particularly suitable in mobile applications.

Under normal circumstances no driver installation is required and the gateway functions fully independently of the operating system platform in use. However if problems arise, please refer to section 8.

Please read the instructions in this handbook before using the gateway for the first time.

1.2
Important to Know

1. The Bluetooth® gateway is battery driven. It is not fully charged upon new delivery.
   Charging the gateway may take up to 2 hours. The gateway may be used while charging.

2. When fully charged the gateway will run continuously 8 – 12 hours without power supply.

3. The maximum range is ~10 meters.

4. The Bluetooth® gateway may be permanently installed in an application.
   In permanent applications the charger enclosed upon delivery is used as a power supply.

5. If no serial communication occurs over a period of 60 seconds then the Bluetooth® gateway will shut down to conserve the battery. If the finding and pairing of the Bluetooth® device takes more than 60 seconds then the gateway will shut down. In the event that the gateway shuts down in the middle of an operation simply turn it on again and repeat the operation.

6. Requirements for Bluetooth® adapters:
   - PC or adapter has to be a class 1 or class 2 Bluetooth® transmitter. The Secop Bluetooth® gateway is a class 2 transmitter.
   - Dedicated software has to support Bluetooth® serial ports.

1.3
Contents of the Package

Bluetooth® RS485 gateway with male DSUB-9 plug connector
   - USB power supply
   - DSUB-9 / RJ45 adaptor

2.
STARTING AND CHARGING THE GATEWAY

2.1
View of Secop Bluetooth® Gateway

USB port for charging battery

Antenna

DC power jack 6 -24V DC supply

LED1 (battery status)

On/Off push button switch

LED2 (operating status)

2.2
Switching On

To switch on the gateway:
1. Plug the Secop Bluetooth® gateway into the RS485 communication interface of the controller.

2. Switch on the Secop Bluetooth® gateway.

3. The gateway enters operating mode. LED2 flashes green rapidly for approx. 3 seconds and then slowly green. (For LED sequences, please see the overview in section 6.)

2.3
Charging the Battery

The Secop Bluetooth® gateway is equipped with a high-performance rechargeable battery, so an external power source is not required. This makes the gateway particularly suitable in mobile applications. We recommend charging the battery before using the device for the first time.
To avoid overcharging and faulty operation, always use the battery charger supplied with the gateway. The time required for full charging is approximately 2 hours.

To charge the battery:
1. Connect the charger to the USB port at the rear of the Bluetooth® gateway

2. Then connect the charger to the wall socket.

3. The status of the charging process is indicated by LED1 (Charging) on the gateway, as follows:

Battery status, during charging with the USB power supply:

LED1	Meaning
RED	Battery is charging - charge duration to full capacity for empty battery approx. 2 hours
OFF	RS485 Secop Bluetooth® gateway is not connected to the charger or the battery is fully charged.

2.4
Recommendations

1. Keep the gateway fully charged, so it is ready for field work.

2. Keep an USB-cable/charger as a backup in the car just for the case someone forgets to charge the gateway battery

3.
PAIRING THE GATEWAY

In order to communicate, Bluetooth® devices must first be paired. Pairing is performed before using the device for the first time. Pairing does not need to be repeated for subsequent use.

Please choose the operating system installed on your computer.

**3.1
Windows XP**

1. Attach or turn on the Bluetooth® radio adapter (transceiver) for your Windows XP computer.

2. Turn on the Secop Bluetooth® gateway by pressing briefly on the push button.
   The LED will blink green.

Please note!:
The gateway runs for 60 seconds before shutting down automatically.
At each step of the pairing process, check that the LED is still blinking.
If one stage of the pairing fails, turn the gateway on again, and try again.

3. Open Bluetooth® Devices in Control Panel/Printers and Other Hardware (Category view)
   or Control Panel (Classic view).

Control Panel Category View:

Control Panel Classic View:
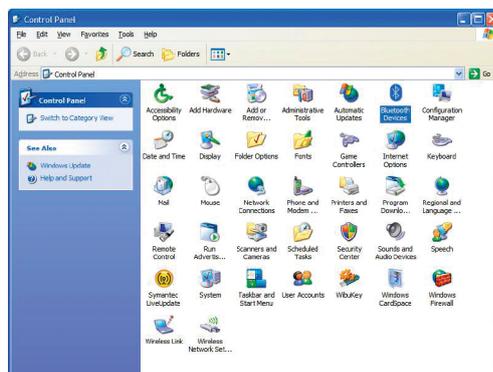
4. On the Devices tab, click Add.
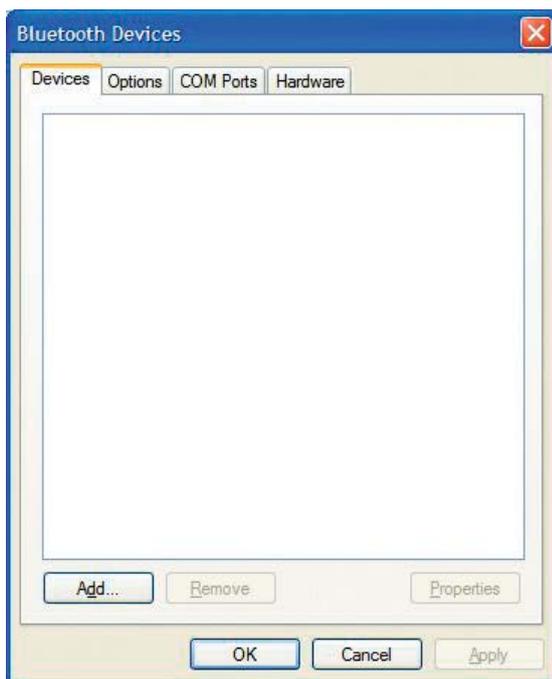
5. Select the My device is set up and ready to be found check box, and then click Next.

6. Click the Secop Bluetooth® gateway shown in the dialog, and then click Next.
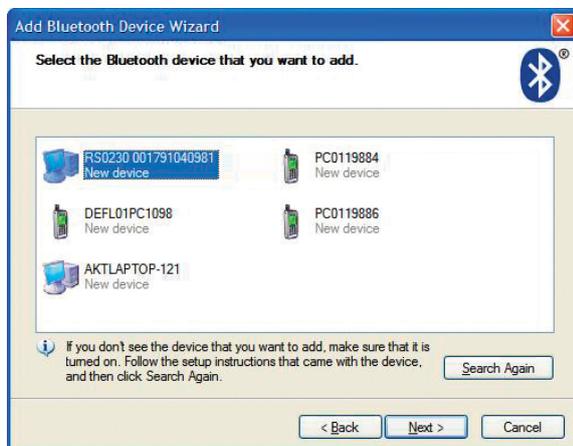
7. Click Use the passkey found in the documentation, and then type the passkey: 1234.
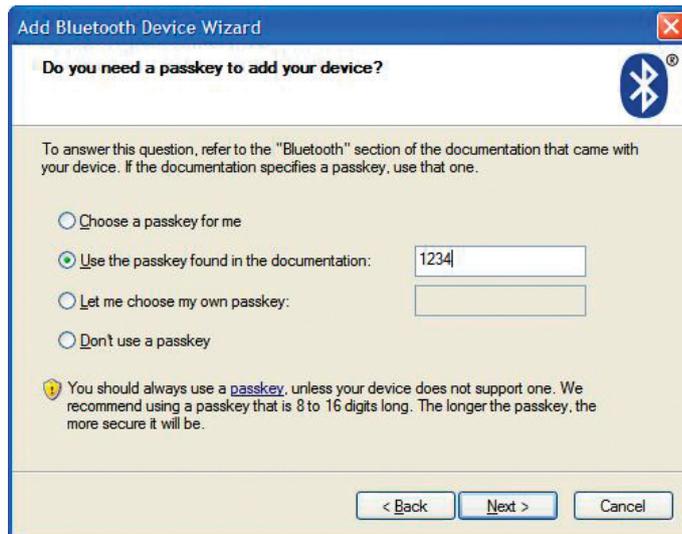
8. Note the outgoing COM port, in this example COM 13. Then click Finish to complete pairing.

9. The COM port can also be viewed in the COM ports tab of the Bluetooth® devices dialog. Make a note of the Outgoing COM port (in this example, COM 13):
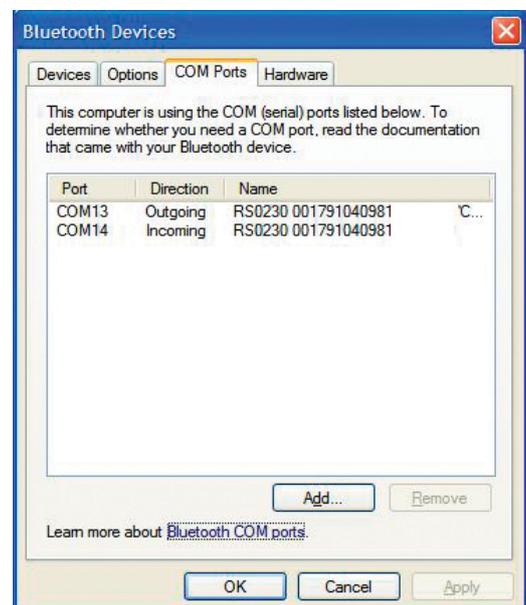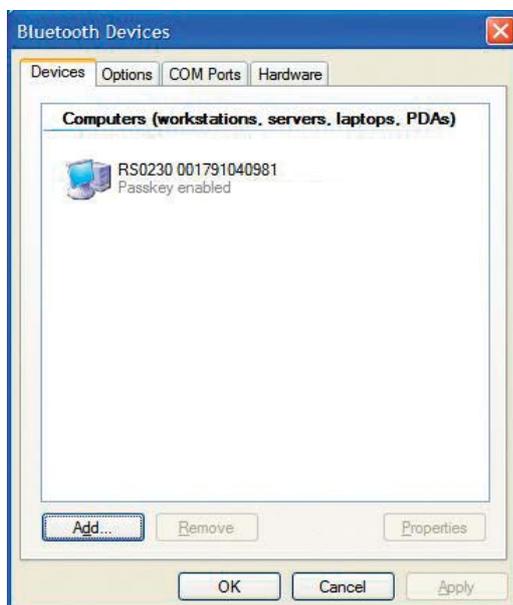
**3.2
Windows 7**

1. Attach or turn on the Bluetooth® radio adapter (transceiver) for your Windows 7 computer.

2. Turn the Secop Bluetooth® gateway on by pressing briefly on the push button. The LED will blink green.

Please note:
The gateway runs for 60 seconds before shutting down automatically.
At each step of the pairing process, check that the LED is still blinking .
If one stage of the pairing fails, turn the gateway on again, and try again.

3. Add a Bluetooth® device from Control Panel/Hardware and Sound.
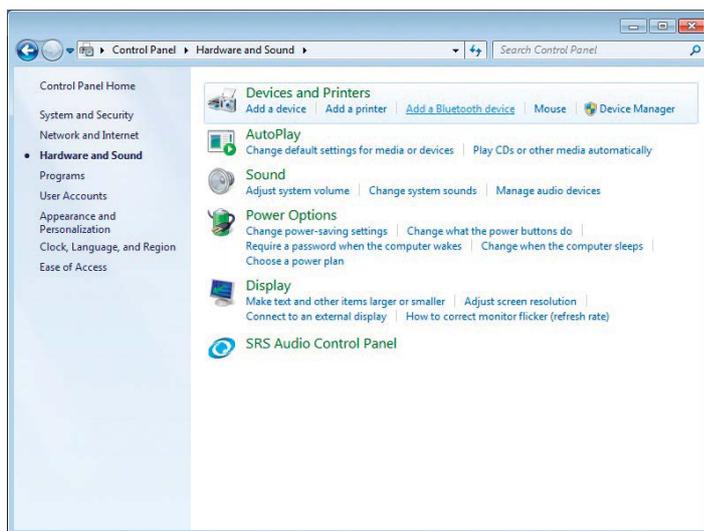
This shall search and display nearby Bluetooth® devices:

4. Select the Secop device, then click Next.
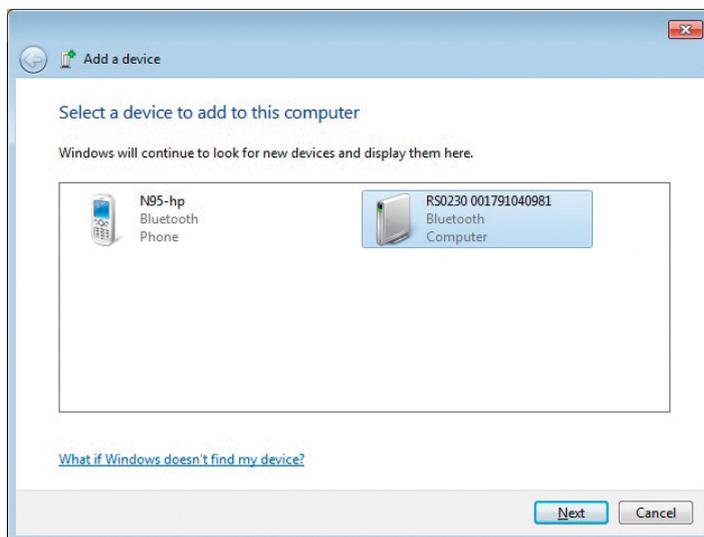
5. Enter the passkey 1234 as shown, then select Next.
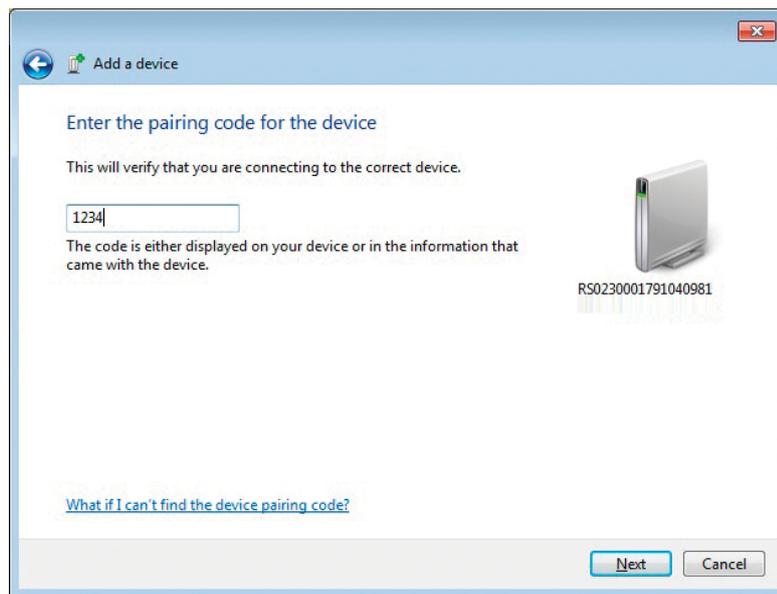
6. Select Close to complete the pairing.
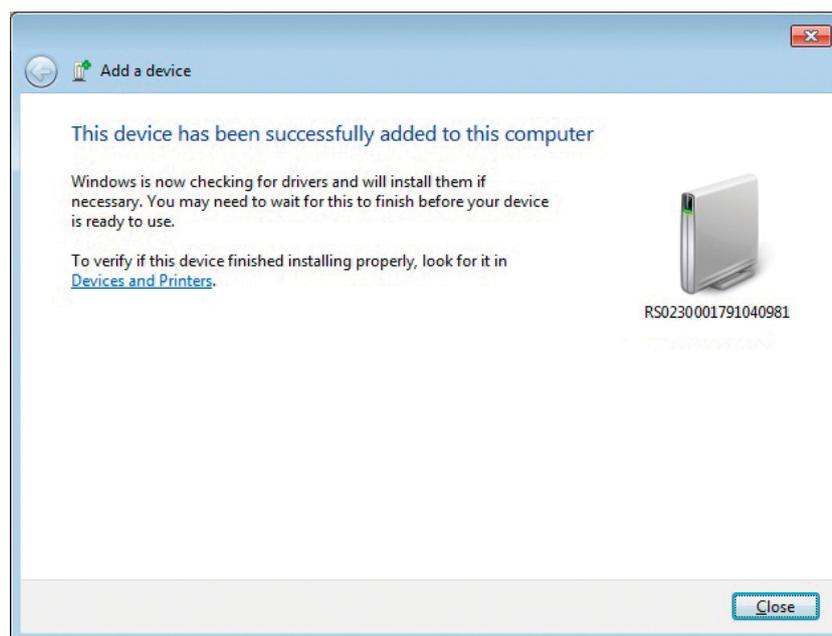
Now look at the Control Panel\Hardware and Sound\Devices and Printers, to confirm the
Secop device is visible:
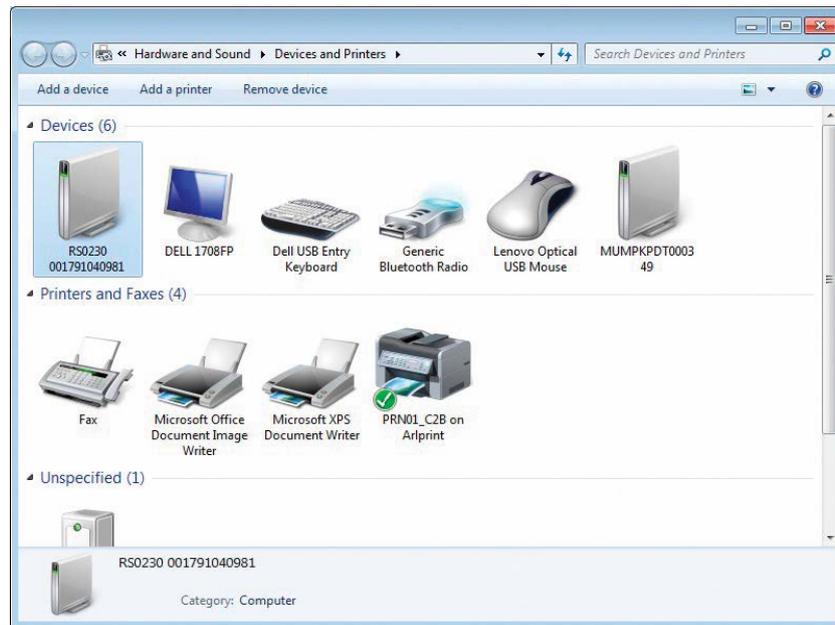
7. Select the Secop device, then select Properties as shown here:
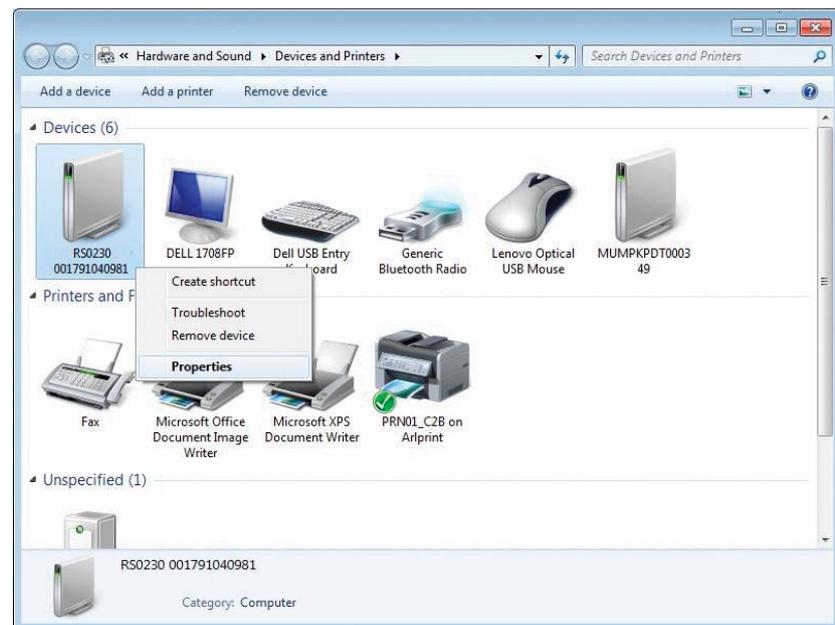
8. Under the Services tab, make a note of the COM port to which the gateway is paired. In this example it is COM13:
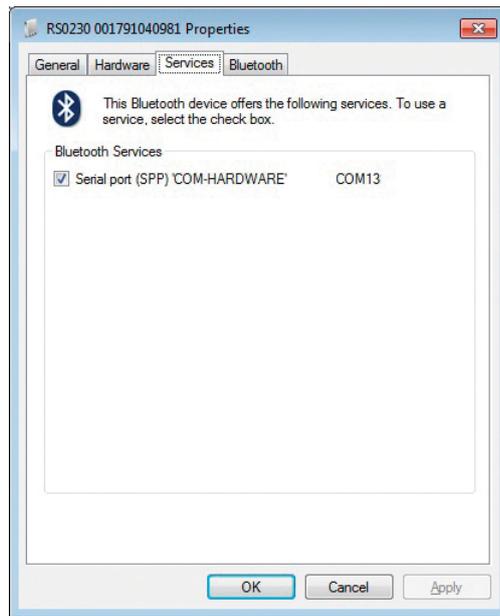
Alternatively, the COM port can be viewed in the Hardware tab of the Bluetooth® devices dialog. Make a note of the COM port:
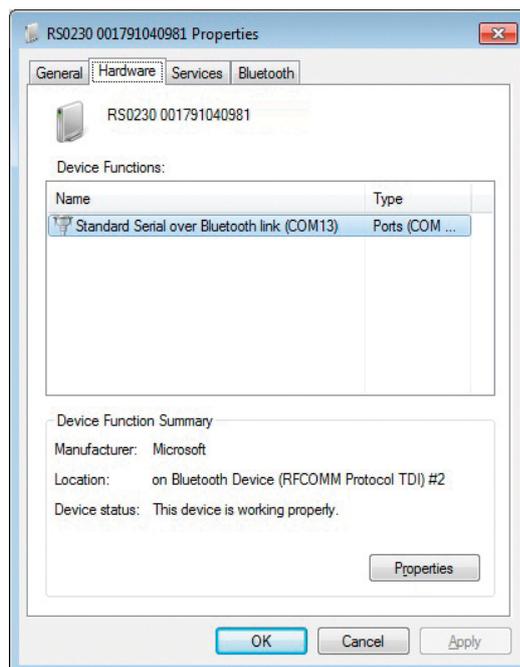
4.
CONFIGURING TOOL4COOL®

1. Start Tool4Cool®

2. Select File in the menu bar.

3. Select Connect Network in the drop-down menu:
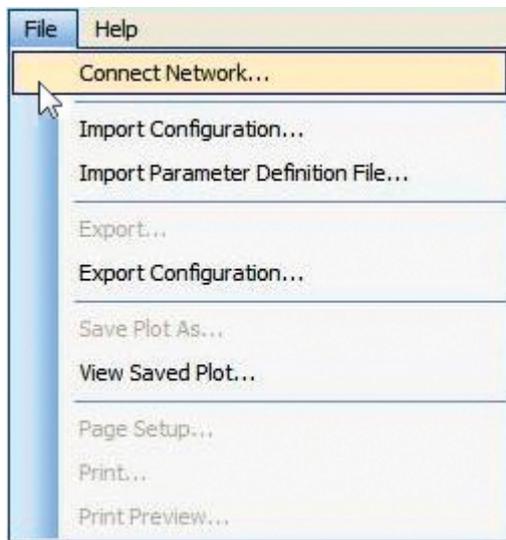
4. This dialog box will open:
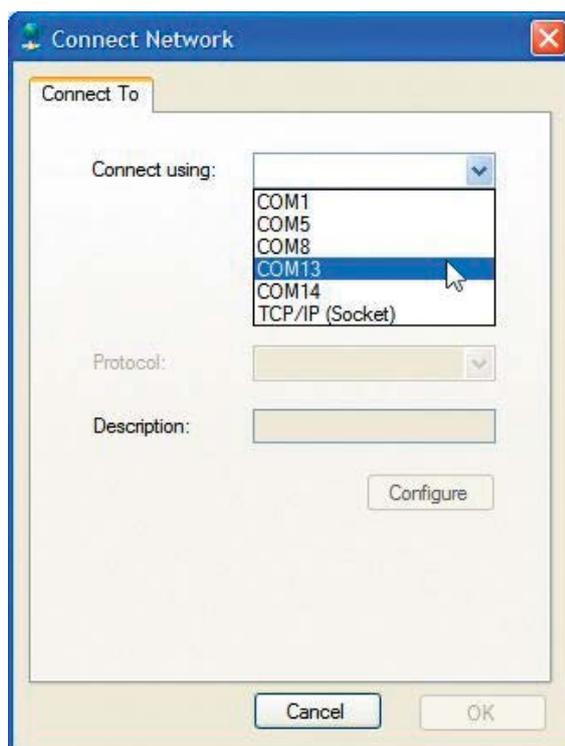
In the Connect using field, select the COM port to which the gateway is connected.
Note!: This is the COM port you noted down in section 3. Pairing the gateway.
Fill in Description (optional).

5. Click the Configure button:
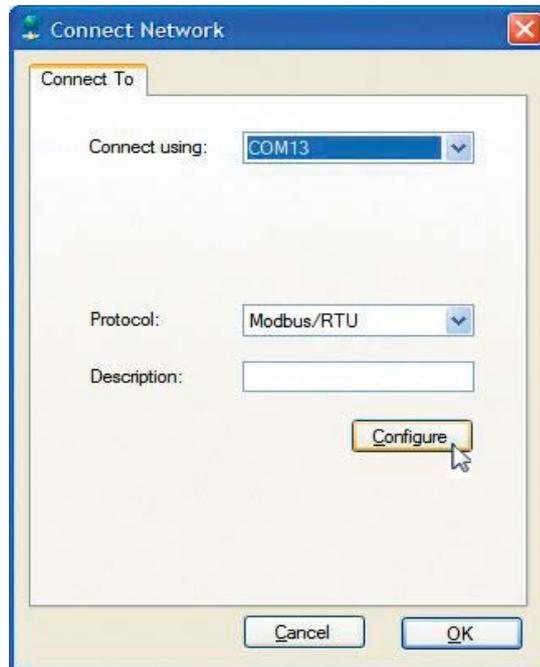
6. The Configure Network dialog box will appear.

7. Set the Refresh rate to ~5 times the number of addressable nodes,
   5 x [(Last network node +1) - First network node]
   This ensures that Tool4Cool® will prevent the Bluetooth® gateway from timing out and turning the
   power off. Tool4Cool® scans the network and detects changes.
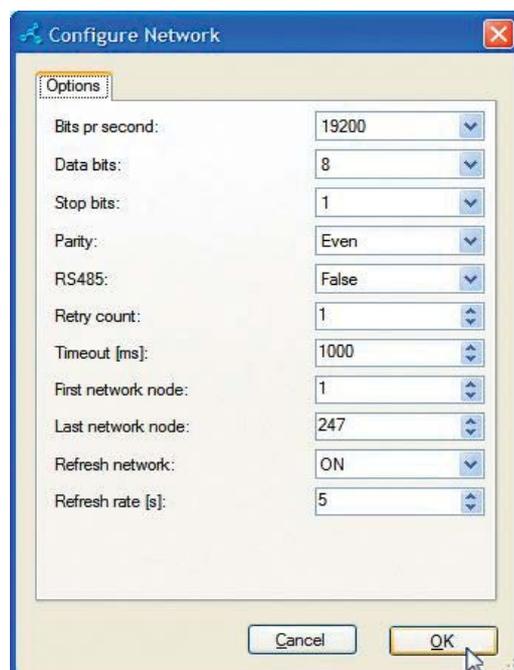
Then click OK to return to the Connect Network dialog.
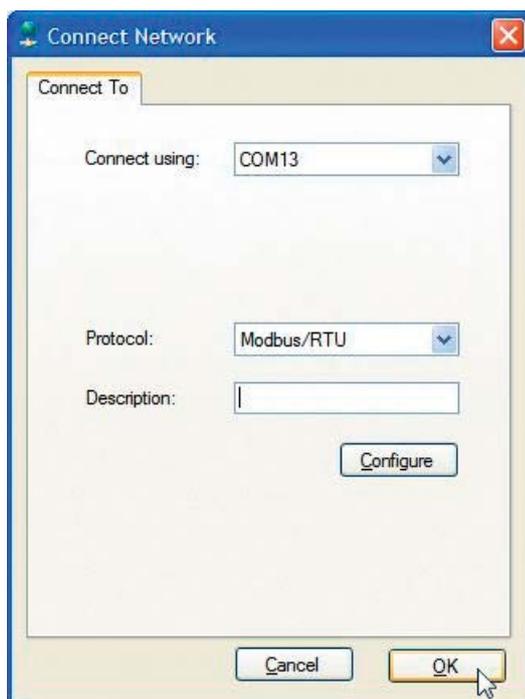
8. Check the gateway is turned on.
   In the Connect Network dialog, click OK.
   Wait a short time. A red arrow will appear in front of the description (COM/USB network).
   The controller is now accessible via Tool4Cool®.

5.
TECHNICAL DATA OVERVIEW

Transmission frequencies		2.402 GHz to 2.480 GHz
Range		max. 10 m
Bluetooth® Interface **Supported Bluetooth® profiles**		Generic Access Profile Serial Port Profile
Transmission power		(Class 2) max. 4dBm
Serial interface	**Connector**	RS485 with male DSUB-9 plug connector
USB interface		Mini USB port 2.0 for charging and power supply
Battery	**Type**	Lithium-Ion rechargeable battery, 3.7V/540mAh
	Operating time	Maximum 10 hours (115.2 kBit/s), fully charged
	Charging time	Maximum 2 h
DC interface		DC power jack 0.65 mm, 6 - 24 V DC stabilized
LED1		Status display for battery
LED2		Status display for gateway
Casing		ABS translucent blue, dimensions 80x40x18 mm
Standard configuration	**Baud rate**	19200 Bit/s
	Stop bit	1
	Parity	Even
	Data bits	8
	Bluetooth® PIN	1234
Weight including antenna and battery		62 grams
Operating temperature		-20 to +60°C
Charging temperature		0 to +45 °C
Storage temperature		-20 to +45°C

6.
GATEWAY STATUS

The Secop Bluetooth® gateway operates as a gateway between a controller and a computer.
LED2 (Status) indicates the operating status of the gateway.

LED2 Sequence	Meaning
LED flashes green for approx. 3 seconds in short, rapid bursts	RS485 Bluetooth® gateway begins Slave mode operation
LED flashes green in slow, short bursts	RS485 Bluetooth® gateway is in normal operating mode – RS485 COM-HARDWARE service is active. Incoming connections are accepted.
LED alternates rapidly between red and green	RS485 Bluetooth® gateway is in normal operating mode – RS485 COM-HARDWARE service is active. A connection between PC and gateway has been successfully established (Tool4Cool® is running).
LED flashes green for approx. 3 seconds in short, rapid bursts followed by slow short bursts	RS485 Bluetooth® gateway is in manual operation mode – RS485 COM-HARDWARE service is not active. (Tool4Cool® is not running) or wrong communication setup (e.g. pairing).
LED flashes red for approx. 3 seconds in short, rapid bursts	RS485 Bluetooth® gateway is defective. Solution: Please return for service.
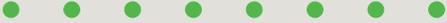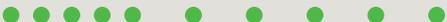
7.
SAFETY NOTES

**7.1
Conformity with
Standards**

This device conforms to the Low Voltage Directive (Safety) 73/23/EEC as per EN 60950 Safety of Information Technology Equipment

Please note!:
Product safety is guaranteed only when power is supplied to the device via a power source/adaptor approved according to EN60950-1, see section 2.5, and which does not exceed the given values.

**7.2
Battery**

The Secop Bluetooth® gateway is powered by a rechargeable Li-ion battery.

Temperature extremes can affect the ability of your battery to charge and can reduce the capacity and lifetime of the battery.
Therefore, do not leave the gateway with battery in vehicles, direct sunlight, or other places where the temperature may rise above 60°C or fall below 0°C.

Use the battery only for its intended purpose.

Do not expose the battery to water or extreme moisture.

Do not drop the battery or subject it to mechanical shocks.

Never use any charger or battery which is damaged.

Charge the battery after purchasing or when it has not been used for a long time.
The time required for full re-charging is approximately 2 hours.

Batteries should be charged in the original manufacturer´s Li-ion specified charging equipment.
Use of other chargers may cause excessive heat or even fire.

Do not open the gateway. Do not short-circuit the battery.

The battery should be replaced by authorized personnel only. Caution: Risk of explosion if battery is replaced by an incorrect type.

Please contact your dealer / manufacturer for service information.

Do not dispose of batteries in a fire! Dispose of batteries according to local regulations
(e.g. recycling).

Do not dispose of as household waste.

8.
TROUBLESHOOTING

8.1
Error Message

The message "please install driver for new hardware" appears when connecting the gateway to the computer.
Solution: The Secop Bluetooth® Gateway operates on a driver which is normally installed as standard. Please contact the computer supplier to obtain a driver.

8.2
LED2 is flashing red

LED2 Sequence	Meaning
LED flashes red for approx. 3 seconds in short, rapid bursts ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	RS485 Bluetooth® gateway is defective. Solution: Please return for service.

8.3
Top Causes of Errors

1. Parameter Definition Files are not imported.
   Solution: The Parameter Definition File contains the parameter data and settings specific to one type and version of Secop controller.
   For some controllers, the Parameter Definition File must be imported. For others, the software will automatically obtain the Parameter Definition File from the controller electronics. When a Parameter Definition File import is required, the system will make a request via a dialog in the software.
   When required, the Parameter Definition File is available from the supplier on a CD or as a file attachment via email.

2. Product Keys are not installed.
   Solution: The Product Key is an alphanumeric code, which is specific to one type and version of Secop controller. The user must enter the Product Key to gain access to the Tool4Cool® LabEdition functions for the Secop controller.
   The user access level is coded into the Product Key, defining which parameters and level of the controller the user is entitled to access. For user access at a different level, a new Product Key is required.
   A separate Product Key is required for every individual controller type and version to be connected to a network.
   The Product Key is available from the supplier of the application.

3. Polarity on RS485 network interchanged.
   Solution: Check your wiring.

4. Addressing on Modbus nodes not different to zero.
   Solution: Check addressing of individual network nodes.

5. Mismatch in address range in Tool4Cool® and Modbus nodes.
   Solution: Check addressing of individual network nodes.

6. Double addressing of Modbus nodes.
   Solution: Check addressing of individual network nodes.

**8.4
There is no
connection between
the computer and the
device served by the
gateway**

A fault may have arisen in the pairing of the Bluetooth® gateway.
Solution: Remove the pairing, and then pair the device again according to 3. Pairing the gateway

1. Remove the pairing:
   Open Bluetooth® Devices in Control Panel (as shown in 3. Pairing the gateway)
   Click the Secop Bluetooth® gateway, and then click the Remove button.

2. Pair the devices again as shown in 3. Pairing the gateway

Many external Bluetooth® adapters are delivered with BlueSoleil software drivers. A test of the drivers shows that they may have problems with the communication speed of Tool4Cool® LabEdition. A solution to this can be to force Tool4Cool® LabEdition to insert delays in the communication.
Solution: This can be done by enabling RS485 in the network setting of Tool4Cool® LabEdition. To enable RS485 in Tool4Cool® LabEdition please perform the following steps:
1. Disconnect.

2. In the File menu select Connect Network.

3. Select the Bluetooth® COM - port in the Connect Using menu.
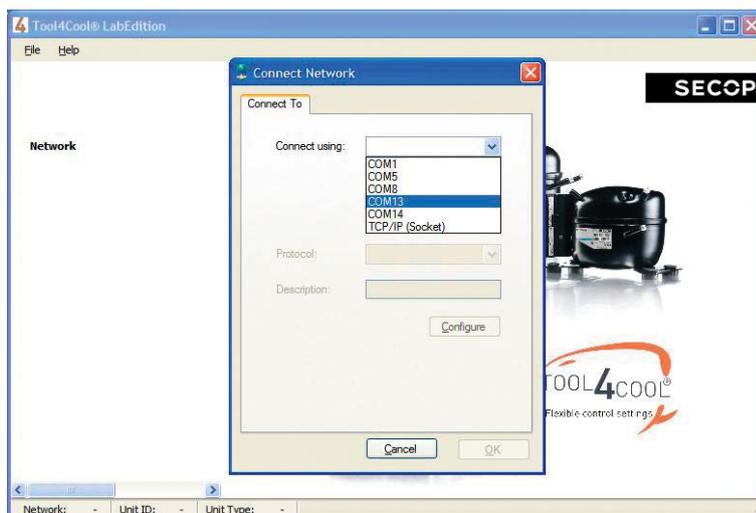
4. Click the Configure button in the Connect Network dialog.

5. Select True in the RS485 menu.
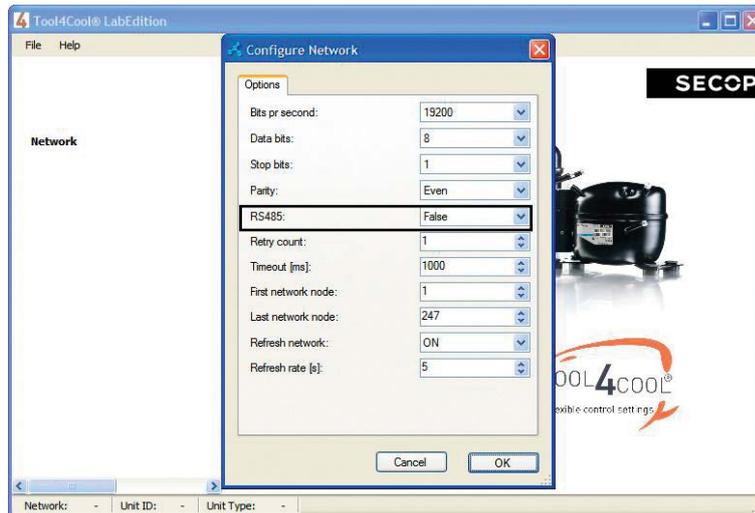
6. Click OK to confirm the change.

7. Click OK again to enable network.

TOOL **4** COOL®

Flexible control settings

TOOL4COOL® SOFTWARE - FLEXIBLE CONTROL SETTINGS

TOOL4COOL® is a unique PC software tool that enables you to precisely configure your Secop compressors to your cooling systems.

Via microprocessor-based controllers, TOOL4COOL® gives you easy access to all parameters. These can be changed, monitored, downloaded or uploaded to get the optimum performance out of your cooling system.

TOOL4COOL® covers a wide range of applications within parking cooling, light commercial cooling and transport cooling and much more. Using TOOL4COOL®, you can determine the basic specifications of your product, giving you the ability to clearly differentiate yourself in the market.

OUR JOURNEY
SO FAR

1956 Production facility and headquarters in Flensburg, Germany founded

1970 Introduction of SC compressors. The birth of a standard setting platform in the light commercial market.

1990 Introduction NL compressors.

1992 Introduction PL compressors.

1999 Start of production with natural refrigerant R290 (Propane).

2005 Introduction GS compressors.

2008 Production facility in Wuqing, China founded.

1958 Start up production of PW compressors.

1972 Introduction FR compressors.

1977 Introduction TL and BD compressors.

1993 Start of production with natural refrigerant R600a (Isobutane). Production facility in Crnomelj, Slovenia founded.

2002 Production facility in Zlate Moravce, Slovakia founded.

2010 Introduction SLV-CNK.2 and SLV-CLK.2 variable speed compressors. Introduction BD1.4F Micro compressor.

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