WITH MORE THAN 50 YEARS OF EXPERIENCE IN COMPRESSOR TECHNOLOGY AND HIGHLY COMMITTED EMPLOYEES, OUR FOCUS IS TO DEVELOP AND APPLY THE ADVANCED COMPRESSOR TECHNOLOGIES TO ACHIEVE STANDARD SETTING PERFORMANCE FOR LEADING PRODUCTS AND BUSINESSES AROUND THE WORLD.

### BLUETOOTH<sup>®</sup> GATEWAY

### SECOP





#### Operating Instructions

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# 1. INTRODUCTION

1.1 General Description	The Secop Bluetooth <sup>®</sup> gateway is used in the connection between a controller and a computer when run- ning Tool4Cool <sup>®</sup> 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 indepen- dently 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	<ol> <li>The Bluetooth<sup>®</sup> 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.</li> <li>When fully charged the gateway will run continuously 8 – 12 hours without power supply.</li> </ol>
	3. The maximum range is ~10 meters.
	<ol> <li>The Bluetooth<sup>®</sup> gateway may be permanently installed in an application. In permanent applications the charger enclosed upon delivery is used as a power supply.</li> </ol>
	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.
	<ul> <li>6. Requirements for Bluetooth<sup>®</sup> adapters:</li> <li>PC or adapter has to be a class 1 or class 2 Bluetooth<sup>®</sup> transmitter. The Secop Bluetooth<sup>®</sup> gateway is a class 2 transmitter.</li> <li>Dedicated software has to support Bluetooth<sup>®</sup> serial ports.</li> </ul>
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



Operating

Instructions

#### 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

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

Edit View Favorites Tools	Help							
) Back - 🕥 - 🧊 🔎	Search 🜔 Fo	iders 🔝 -						
ress 📴 Control Panel	_						~	Go
Control Rapel	Ċ.	2	1	-	2	*	1	
Switch to Category View	Accessibility Options	Add Hardware	Add or Remov	Administrative Tools	Automatic Updates	Bluetooth Devices	Configuration Manager	
Cara Alan 🔹	2	8	5	1	<pre>p</pre>		1	
Windows Update	Cate and Time	Display	Folder Options	Fents	Game Controllers	Internet Options	Keyboard	
Help and Support	٥	C		1		2	۲	
	Mail	Mouse	Network Connections	Phone and Modem	Printers and Faxes	Program Downlo	Regional and Language	
	-	3	<b>e</b>	1	۲	O,	2	
	Remote	Run Advertis	Scanners and Cameras	Scheduled Tasks	Security Center	Sounds and Audio Devices	Speech	
	(1)	-	<b>.</b>	82	-	1	0	
	Symantec LiveUpdate	System	Taskbar and Start Menu	User Accounts	WibuKey	Windows CardSpace	Windows Firewall	
	2	((0)						
	Wireless Link	Wireless Network Set						

4. On the Devices tab, click Add.

luetooti	n Device	S		
Devices	Options	COM Ports	Hardware	
		-		
Ad	d	<u>R</u> emove		Properties

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.

RS0230 001791040981 New device	PC0119884 New device
DEFL01PC1098 New device	PC0119886 New device
AKTLAPTOP-121 New device	
If you don't see the device that yo turned on. Follow the setup instru and then click Search Again.	ou want to add, make sure that it is ctions that came with the device.

7. Click Use the passkey found in the documentation, and then type the passkey: 1234.

Add Bluetooth Device Wizard	
Do you need a passkey to add your device?	*
To answer this question, refer to the "Bluetooth" section your device. If the documentation specifies a passkey,	n of the docum <mark>e</mark> ntation that came with use that one.
O Choose a passkey for me	
Output Set the passkey found in the documentation:	1234
O Let me choose my own passkey:	
O Don't use a passkey	
You should always use a <u>passkey</u> , unless your dev recommend using a passkey that is 8 to 16 digits lo more secure it will be.	ice does not support one. We ng. The longer the passkey, the
<	Back Next > Cancel

8. Note the outgoing COM port, in this example COM 13. Then click Finish to complete pairing.

Add Bluetooth Device Wiz	ard	×
®	Completing the Add Bluetooth Device Wizard	
	The Bluetooth device was successfully connected to your computer. Your computer and the device can communicate whenever they are near each other.	
	These are the COM (serial) ports assigned to your device.	
	Outgoing COM port: COM13	
	Incoming COM port: COM14	
	Learn more about <u>Bluetooth COM ports</u>	
	To close this wizard, click Finish.	
	< <u>B</u> ack <b>Finish</b> Cance	

 The COM port can also be viewed in the COM ports tab of the Bluetooth<sup>®</sup> devices dialog. Make a note of the Outgoing COM port (in this example, COM 13):

Computers (workstations, servers, laptops, PDAs)	This computer is using the COM (serial) ports listed below. To determine whether you need a COM port, read the documentati that came with your Bluetooth device.
RS0230 001791040981 Passkey enabled	Port Direction Name
	COM13 Odigoing RS0230.001791040981 COM14 Incoming RS0230.001791040981
	Add
Add Properties	Add Remo

#### 3.2 Windows 7

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

2. Turn the Secop Bluetooth  $^{\odot}$  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<sup>®</sup> 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.

G	💣 Add a device	<b>X</b>
	Enter the pairing code for the device This will verify that you are connecting to the correct device.	
	The code is either displayed on your device or in the information that came with the device.	
	What if I can't find the device pairing code?	
	Next Can	cel

6. Select Close to complete the pairing.

		×
$\bigcirc$	💣 Add a device	
	This device has been successfully added to this computer Windows is now checking for drivers and will install them if necessary. You may need to wait for this to finish before your device is ready to use. To verify if this device finished installing properly, look for it in <u>Devices and Printers</u> .	R50230001791040981
		<u>C</u> lose

Now look at the Control Panel\Hardware and Sound\Devices and Printers, to confirm the Secop device is visible:

		<b>.</b>
Search Devices and Printers	inters	Q
Add a device Add a printer Remove device	-	0
Devices (6)		
RS0230 0017910400981     DELL 1708FP     Dell USB Entry Keyboard     Generic Bluetooth Radio     Lenovo Optical USB Mouse     MUMPKPDT0003 49       • Printers and Faxes (4)		ш
Fax Microsoft Office Document Image Document Writer PRNJ_C2B on Arlprint		
Unspecified (1)		
R50230 001791040981 Category: Computer		

7. Select the Secop device, then select Properties as shown here:

	Hardware and Sound Devices and Printers Control Search Devices an	d Printers 🔎	>
Add a device	Add a printer Remove device	0	
Devices (6)			-
RS0230 001791040981	DELL 1708FP Dell USB Entry Create shortcut	2	III
	Troubleshoot Remove device Properties		
Fax Unspecified (1	Microsoft Office Microsoft XPS PRN01_C2B on Document Image Document Writer Arlprint Writer 1)		
•			Ŧ
RSI	0230 001791040981 Category: Computer		

8. Under the Services tab, make a note of the COM port to which the gateway is paired. In this example it is COM13:

ieneral Hardware Services Bluetooth	wing services. To use a
service, select the check box.	
Bluetooth Services	
Serial port (SPP) 'COM-HARDWARE'	COM13

Alternatively, the COM port can be viewed in the Hardware tab of the Bluetooth<sup>®</sup> devices dialog. Make a note of the COM port:

eneral Hard	ware Service	s Bluetooth	
RS Device Fun	0230 00179104	10981	
Name			Туре
Standard	Serial over Blu	etooth link (COM13)	Ports (COM
Device Fun Manufacture	ction Summary er: Microsoft on Blueton	th Device (RFCOMM	Protocol TDI) #2
Device Fun Manufacture Location: Device statu	ction Summary er: Microsoft on Bluetoot us: This device	th Device (RFCOMM	Protocol TDI) #2

## 4. CONFIGURING TOOL4COOL®

- 1. Start Tool4Cool®
- 2. Select File in the menu bar.
- 3. Select Connect Network in the drop-down menu:

File	Help
	Connect Network
63	Import Configuration Import Parameter Definition File
	Export Export Configuration
	Save Plot As View Saved Plot
	Page Setup
	Print
	Print Preview

4. This dialog box will open:

Connect using:	~
	COM1 COM5
	COM8
	COM14
	TCF/IF (SOCKEL)
Protocol:	~
Description:	
	Configure

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:

🗸 Connect Network		×
Connect To		
Connect using:	СОМ13	
Protocol:	Modbus/RTU	
Description:		
	Cancel OK	

- 6. The Configure Network dialog box will appear.
- 7. Set the Refresh rate to  ${\sim}5$  times the number of addressable nodes,

5 x [[Last network node +1] - First network node] This ensures that Tool4Cool<sup>®</sup> will prevent the Bluetooth<sup>®</sup> gateway from timing out and turning the power off. Tool4Cool<sup>®</sup> scans the network and detects changes.

Bits pr second:	19200	~
Data bits:	8	~
Stop bits:	1	~
Parity:	Even	~
RS485:	False	~
Retry count:	1	\$
Timeout <mark>(</mark> ms):	1000	\$
First network node:	1	\$
Last network node:	247	\$
Refresh network:	ON	~
Refresh rate [s]:	5	\$

Then click OK to return to the Connect Network dialog.

Connect using:	СОМ13 💌
Protocol:	Modbus/RTU 🗸
Description:	[

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		Generic Access Profile	
Supported Bluetooth <sup>®</sup> profiles		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	Туре	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	a 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	<ul> <li>The Secop Bluetooth® gateway is powered by a rechargeable Li-ion battery.</li> <li>Temperature extremes can affect the ability of your battery to charge and can reduce the capacity and lifetime of the battery.</li> <li>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.</li> <li>Use the battery only for its intended purpose.</li> <li>Do not expose the battery to water or extreme moisture.</li> <li>Do not drop the battery or subject it to mechanical shocks.</li> <li>Never use any charger or battery which is damaged.</li> <li>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.</li> <li>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.</li> <li>Do not open the gateway. Do not short-circuit the battery.</li> <li>The battery should be replaced by authorized personnel only. Caution: Risk of explosion if battery is replaced by an incorrect type.</li> <li>Please contact your dealer / manufacturer for service information.</li> <li>Do not dispose of batteries in a fire! Dispose of batteries according to local regulations [e.g. recycling].</li> <li>Do not dispose of as household waste.</li> </ul>

## 8. TROUBLESHOOTING

8.1 Error Message	The message "please install driver for new hard the computer. Solution: The Secop Bluetooth® Gateway operat standard. Please contact the computer supplier	Iware" appears when connecting the gateway to es on a driver which is normally installed as to obtain a driver.
8.2	LED2 Sequence	Meaning
LEDZ is nashing reu	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	<ol> <li>Parameter Definition Files are not imported. Solution: The Parameter Definition File conta one type and version of Secop controller. For some controllers, the Parameter Definiti ware will automatically obtain the Parameter When a Parameter Definition File import is n dialog in the software. When required, the Parameter Definition File file attachment via email.</li> <li>Product Keys are not installed. Solution: The Product Key is an alphanumeri of Secop controller. The user must enter the LabEdition functions for the Secop controller The user access level is coded into the Produc the controller the user is entitled to access. If Key is required. A separate Product Key is required for every nected to a network. The Product Key is available from the supplie</li> <li>Polarity on RS485 network interchanged. Solution: Check your wiring.</li> <li>Addressing on Modbus nodes not different to</li> </ol>	ains the parameter data and settings specific to on File must be imported. For others, the soft- Definition File from the controller electronics. equired, the system will make a request via a e is available from the supplier on a CD or as a c code, which is specific to one type and version Product Key to gain access to the Tool4Cool® c uct Key, defining which parameters and level of For user access at a different level, a new Product individual controller type and version to be con- er of the application.
	<ul> <li>Solution: Check addressing of individual netw</li> <li>5. Mismatch in address range in Tool4Cool<sup>®</sup> an Solution: Check addressing of individual netw</li> </ul>	vork nodes. d Modbus nodes. vork nodes.
	<ol> <li>Double addressing of Modbus nodes.</li> <li>Solution: Check addressing of individual network</li> </ol>	vork 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

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

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

Many external Bluetooth<sup>®</sup> adapters are delivered with BlueSoleil software drivers. A test of the drivers shows that they may have problems with the communication speed of Tool4Cool<sup>®</sup> LabEdition. A solution to this can be to force Tool4Cool<sup>®</sup> LabEdition to insert delays in the communication.

Solution: This can be done by enabling RS485 in the network setting of Tool4Cool<sup>®</sup> LabEdition. To enable RS485 in Tool4Cool<sup>®</sup> LabEdition please perform the following steps: 1. Disconnect.

2. In the File menu select Connect Network.



3. Select the Bluetooth<sup>®</sup> COM - port in the Connect Using menu.

jle <u>H</u> elp	Connect Network	
	Connect To	SEC
Network	Connect using: COM1 COM5 COM8	
	COM13 COM14 TCP/IP (Socket)	
	Description:	
	Configu	ure
		rooL4cool
		Flexible control settings
		QK

4. Click the Configure button in the Connect Network dialog.

4 Tool4Cool® LabEdition		🛛
Eile Help		
	Connect Network	SECOP
Network	Connect using: COM13 🗸	
	Protocol: Modbus/RTU V	
	Configure	
	Çancel QK	
Network: - Unit ID: - Unit	Type: -	

5. Select True in the RS485 menu.

Network       Options       Image: Second:       19200       Image: Second:       Image: Second: <t< th=""><th>File Help</th><th>⊰ Configure Network</th><th></th><th></th></t<>	File Help	⊰ Configure Network		
Network       Bits pr second:       19200       V         Data bits:       8       V         Stop bits:       1       V         Parity:       Even       V         R5485:       False       V         Retry court:       1       V         Tmeout [ms]:       1000       V         East network node:       1       V         Last network node:       247       V         Refresh network:       ON       V         Refresh rate [s]:       5       O		Options		SEC
Network     Data bits:     B       Stop bits:     1       Parity:     Even       R5485:     False       Retry court:     1       Timeout [ms]:     1000       First network node:     1       Last network node:     247       Refresh network:     ON       Refresh rate [s]:     5		Bits pr second:	19200	~
Stop bits:       1         Parity:       Even         R5485:       False         Retry court:       1         Timeout [ms]:       1000         First network node:       1         Last network node:       247         Refresh network:       ON         Refresh rate [s]:       5         Stop bits:       5	Network	Data bits:	8	~
Party:       Even         RS485;       False         Retry court:       1         Timeout [ms]:       1000         First network mode:       1         Last network mode:       247         Refresh network:       ON         Refresh nate [s]:       5         Different nate [s]:       5		Stop bits:	1	
RS485:       False         Retry count:       1         Timeout [ms]:       1000         Finit network node:       1         Last network node:       247         Refresh network:       0N         Refresh nate [s]:       5         Solution       5		Parity:	Even	
Retry count:       1         Timeoul [ms]:       1000         First network node:       1         Last network node:       247         Refresh network:       0N         Refresh rate [s]:       5         Solution       5		RS485:	False	✓
Timeout [ms]:       1000         First network node:       1         Last network node:       247         Refresh network:       0N         Refresh rate [s]:       5         Solution       001/4/000100         oxibic control settings		Retry count:	1	
First network node:     1       Last network node:     247       Refresh network:     0N       Refresh nate [s]:     5		Timeout [ms]:	1000	
Last network node: 247 Refresh network: ON Refresh rate [s]: 5 OOL4COOL wibie control settings		First network node:	1	
Refresh nate [s]:     ON       Solution     Solution		Last network node:	247	\$
Refresh rate [s]: 5 00L4C00[2 pxible control settings		Refresh network:	ON	
evible control settings		Refresh rate [s]:	5	
exible control settings				COOL
				exible control settings
			Cancel OK	

6. Click OK to confirm the change.

7. Click OK again to enable network.



#### TOOL4COOL® SOFTWARE - FLEXIBLE CONTROL SETTINGS

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

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



### OUR JOURNEY

Prochea burg	956 duction facility and dquarters in Flens- g, Germany founded	Introduction of SC compressors. The birth of a stand- ard setting platform in the light commer- cial market.			<b>1990</b> Introduction NL compressors.		1992 Introduction PL compressors.	<b>1999</b> Start of production with natural refrigerant R290 (Propane).		2005 Introduction GS compressors.		2008 Production facility in Wuqing, China founded.	
-	<b>1958</b> Start up production of PW compressors.		<b>1972</b> Introduction FR compressors.	19 Intro BD c	977 oduction TL and compressors.		1993 Start of production natural refrigerant Production facility Slovenia founded.	with : R600a (Isobutane) in Crnomelj,	20 Produ in Zlat Sloval	02 ction facility e Moravce, cia founded.		2010 Introduction SLV-CNK.2 and SLV-CLK.2 variable speed compressors. Introduction BD1.4F Micro compressor.	



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