

# SmartLink Box



SmartLink Box in  
Analyser mode

## SmartLink Box

With the SmartLink Box, you have powerful dedicated hardware for testing smart cards and terminals, such as payment terminals and mobile equipment. It can be used for testing, analysing, intercepting, and modifying communication signals exchanged between a smart card and a terminal. Additionally, it can be used as a smart card simulator or as a superior card reader with no restrictions on voltage and frequency.

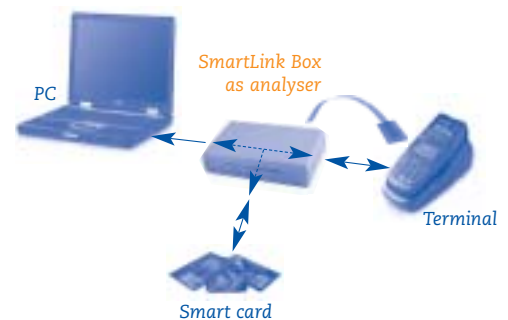
## Business applications

The SmartLink Box can be used in various business environments, such as:

- EMV payment schemes for testing EMV credit cards on payment terminals (VSDC, M/Chip, J/Smart).
- Telecom industries for testing SIM (GSM/3G) cards and mobile equipment.
- Transport environments for testing Digital Tachograph Cards and Vehicle Units.
- Loyalty schemes for testing loyalty cards and terminals.
- Every other ISO 7816 card/terminal combination.

## Modes of operation

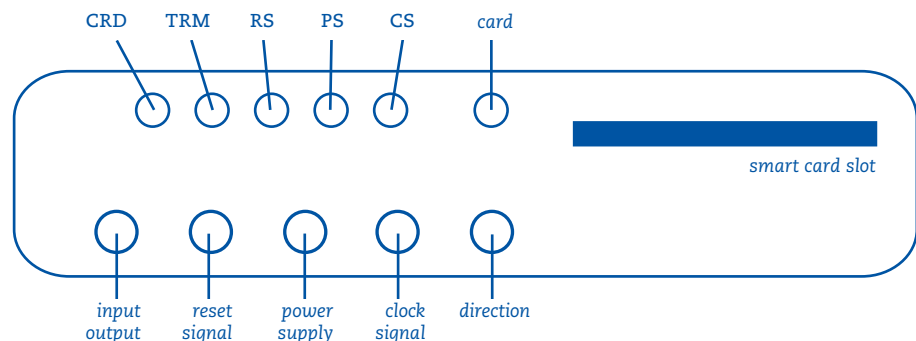
The SmartLink Box has four fundamental modes of operation: the analyser mode, the card simulator mode, the interceptor mode, and the card reader mode. In the last mode, the SmartLink Box only communicates with a card (for smart card testing). The other modes are for testing a terminal on its ISO 7816 smart card interface.



## Analyser mode

The Analyser mode or 'Spy mode' is the default operation mode of the SmartLink Box. It can be used for tracing and analysing information exchange between smart card and terminal. In this mode, the SmartLink Box operates transparently. It is connected to a terminal with a smart card probe (or paddle). Via this probe, the SmartLink Box monitors the data and all signals (VCC, clock signal, RST, and I/O) that are exchanged between the smart card and the terminal (without interference).

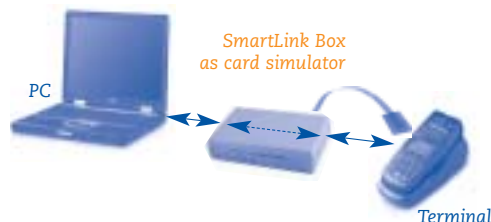
Front of the  
SmartLink Box



### SmartLink Box in Card simulator mode

Data is sent through the USB/RS-232 port to a PC, and can be analysed with software applications on the PC, e.g. the Conclusion Test Platform. The electronic signals can be monitored and analysed (for instance with an oscilloscope) by making use of the high impedance connectors (SMB) on the front of the SmartLink Box.

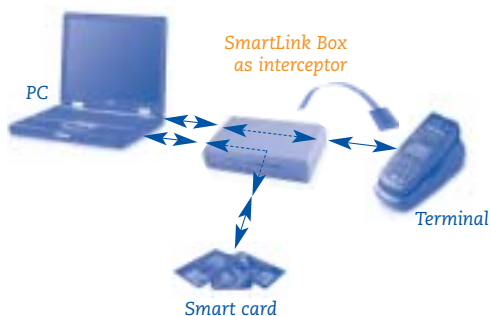
For performance testing of terminals and smart cards, the SmartLink Box is able to place timestamps on data messages received from the card or the terminal. The resolution of these timestamps is 100 µs.



The PC can be connected to a terminal by using the SmartLink Box with the smart card probe. As a result, a terminal can be tested on all kinds of smart card configurations, card responses, and status words.

The Card simulator mode can be used for instance for EMV (VSDC, M/Chip, J/Smart) terminals, card readers, and smart cards.

### SmartLink Box in Interceptor mode



#### Interceptor mode

The Interceptor mode configuration is almost identical to the Analyser mode, with the exception that the SmartLink Box intercepts the I/O signals between the smart card and the terminal. Data from a terminal or card is received and sent to the PC, but it is no longer simultaneously transferred to the card or terminal respectively. This enables the user to intercept and modify the data using a software application on the PC, e.g. the Conclusion Test Platform. In other words, the user has full control on the data transferred between the card and the terminal.

The Interceptor mode can be used for instance for SIM (GSM/ 3G) card readers and smart cards.

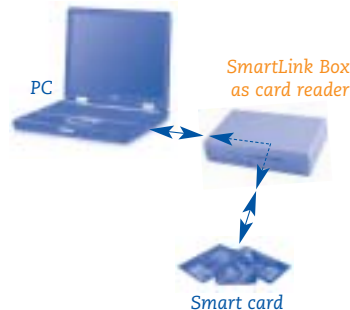
#### Card simulator mode

In the Card simulator mode it is possible to operate without a smart card, turning the SmartLink Box into a card simulator. The full functional behaviour of any smart card can be simulated on the PC.

#### Card reader mode

In Card reader mode, the SmartLink Box behaves like an intelligent smart card reader. It will supply the VCC, CLK, and RST signals to the smart card. Via software on a PC, for example the Conclusion Test Platform, it is possible to send messages to the smart card and to receive the responses from the smart card. A great advantage of using the SmartLink Box as a card reader is that the user can set the VCC voltage, CLK frequency, and bit rate over a wide range.

### SmartLink Box in Card reader mode



#### No voltage and frequency restrictions

The SmartLink Box is an advanced tool that facilitates the hardware interface between software applications on the PC, and a smart card or terminal. It provides information on several parameters, such as supply voltage, clock frequency, and communication speed (bit rate). As mentioned before, the major advantage of the SmartLink Box in the Card reader mode is the possibility to set the VCC voltage and CLK frequency over a wide range. Hence, by using the SmartLink Box as a card reader you will experience no more restrictions on voltage and frequency.

# No restrictions on voltage, bit rate, and clock frequency

### Technical specifications

The SmartLink Box is designed to operate on the interface between a smart card and a terminal that operate according to the ISO 7816-3 standard.

#### VCC voltage

Supported VCC range:

2 – 6.3 V

Measurement of VCC voltage

Yes

(steps: 100 mV; accuracy: ±2%)

Possibility to set VCC voltage

Yes

(steps: 100 mV; accuracy: ±2%)

#### CLK frequency

Supported CLK frequency

DC > 30 MHz

Generated frequency in Card reader mode

500 kHz – 24 MHz in 1 kHz steps

Support for CLK stop

Yes

Support for CLK frequency change

Yes

#### Communication parameters

Support for bit rate change

Yes

Supported bit rate

Continuous; determined by CLK frequency and F/D

Communication speed between the SmartLink Box and PC

- for RS-232 115200 bps

- for USB: 115200, 230400, and 460800 bps

Maximum message length

890 bytes

Per-byte indication of Parity errors

Yes

#### Other

Field-upgradeable firmware

Yes

Possibility to place timestamps on data messages

Yes

(resolution: 100 µs)

Drivers available for Windows 98, NT, 2000, and XP

Yes

### Product range

The following SmartLink Box related tools are available.

#### SmartLink Box

(Reference code: SLB-P1)

Powerful dedicated hardware for testing smart cards and terminals. It can be used for testing, analysing, intercepting, modifying, and simulating communication signals exchanged between a smart card and a terminal.

#### Conclusion Test Platform

(Reference code: CP-P1)

The SmartLink Box is designed for seamless integration with the Conclusion Test Platform.

The Conclusion Test Platform is today's high-end development tool for protocol simulation and interface testing.

For years now, the Conclusion Test Platform has found its way into the test environment of satisfied customers all over the world.





#### **About Collis**

The SmartLink Box and the Conclusion Test Platform are products of Collis.

Collis provides consulting services, test tools, and training programmes to companies in the electronic transaction business.

Contact Collis for more information about the SmartLink Box, the Conclusion Test Platform, or other test tools.



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