



ASiKS-Engineering

User Manual

SmartLIN-RS232 V2.1 TTL Module

Document Reference No.: UM128739

Version 1.0

Issue Date: 2025-10-15

This document provides detailed information about ASiKS-Engineering's SmartLIN-RS232 V2.1 TTL Module.

**ASiKS-Engineering
Your Reliable Partner
in System Engineering, Prototyping, Hardware and Software Development
Dr. Andreas Schramm**

Am Franzosenbach 6, 83558 Maitenbeth, Germany
Tel.: +49(0)8076/8897081
E-Mail: info@asiks-engineering.com Web: <https://www.asiks-engineering.com>

TABLE OF CONTENTS

1 Introduction.....	3
2 Connectors and pinning description	3
2.1 LIN connector D-SUB 09 plug (male)	3
2.2 RS232 Connector D-SUB 09 plug (female)	4
3 Interface Detection	3
4 Communication	4
4.1 RS232 Port Initialization (UART protocol).....	4
4.2 LIN Bus Data Sending	4
4.3 LIN Bus Data Receiving	5
5 Disclaimer.....	5
6 Contact Information	5
Appendix A – Revision History	5

1 Introduction

The SmartLIN-RS232 V2.1 TTL Module shown in Figure 1 is used for easily connecting a LIN Bus to the serial Port (RS232) of e.g. a PC. The module additionally implements an alternative DTR signal generation via separate DTR TTL control line.

As it is an active interface, LIN Bus specific signals like synchronization break and synchronization delimiter are generated by the interface and hence no baud rate switching algorithm is required by the host application.



Figure 1: SmartLIN-RS232 V2.1 TTL Module

This interface provides the following features:

- 9-pin D-SUB plug (male) to connect to the LIN Bus
- 9-pin D-SUB plug (female) to connect to the serial port of e.g. a PC
- Dimensions: 71mm x 43mm x 24mm
- Optimized to be used with LIN-EASYSTARTER (LinMon software version **v2.10beta**, downloadable at https://www.asiks-engineering.com/downloads_eng.html)

2 Connectors and pinning description

2.1 LIN connector D-SUB 09 plug (male)

Table 1 shows the pinning, functional description and electrical characteristics of the LIN connector of ASiKS-Engineering's SmartLIN-RS232 V2.1 TTL Module.

Pin	Symbol	Description	Min	Typ	Max	Unit
3	GND	Ground	0	0	0	V
7	LIN*	LIN bus line input/output	-27		+40	V
5	DTR_TTL	DTR control line	4.5	5	5.1	V
9	VBat	battery supply	5	12	18	V

Table 1: Quick reference data – LIN D-SUB 09 male

Note *: Master configuration (1k PullUp), slave configuration upon request

2.2 RS232 Connector D-SUB 09 plug (female)

Standard 9-pin D-SUB connector to connect the SmartLIN-RS232 V2.1 TTL Module to the serial communication port of e.g. a PC using a standard 1:1 straight cable.

The electrical characteristics of the RS232 Standard apply.

3 Interface Detection

The SmartLIN-RS232 V2.1 TTL Module simply can be checked for availability as follows:

- RTS and DTR of the RS232 communication port are **set** and **cleared** again
- CTS is monitored
- If CTS is "ON", the interface is detected correctly and ready for use

Listing 1 illustrates a programming example of an interface detection routine.

```
[...]

EscapeCommFunction(serial_struct_info->pComPortFile, SETDTR);

EscapeCommFunction(serial_struct_info->pComPortFile, SETRTS);


EscapeCommFunction(serial_struct_info->pComPortFile, CLRDTR);

EscapeCommFunction(serial_struct_info->pComPortFile, CLRRTS);


GetCommModemStatus(serial_struct_info->pComPortFile, &dwModemState);
```

Listing 1: Interface detection source code example

4 Communication

4.1 RS232 Port Initialization (UART protocol)

The host's communication port needs to be configured as follows:

- Baud rate: user defined
- Data Bits: 8
- Parity: None
- Stop Bits: 1

4.2 LIN Bus Data Sending

The SmartLIN-RS232 V2.1 TTL Module handles the LIN synchronization break and delimiter generation whereby no special baud rate conversion mechanism is required by the host application. The LIN message header simply is expanded by some trailing bytes replacing the LIN synchronization break and delimiter as illustrated in Figure 2.

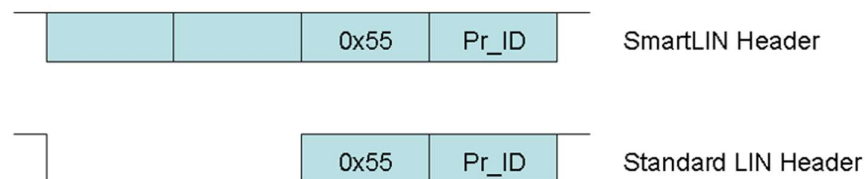


Figure 2: SmartLIN-RS232 LIN header structure

The values for synch break and delimiter easily can be calculated using the SmartLIN Bit Time Tool, available for download at our homepage.

NOTE: Depending on the delimiter value, RTS wire needs to be set or cleared accordingly!

NOTE: The communications port's DTR wire **needs to be toggled** any time a message (Header and as the case may be Response) is sent by the host application!

4.3 LIN Bus Data Receiving

For receiving of LIN Bus data using the SmartLIN-RS232 V2.1 TTL Module, the host application needs to monitor the “CE_BREAK” (communication break) flag through what the start of new LIN Bus Header is indicated.

5 Disclaimer

For damage of any kind, arising by the employment of the SmartLIN-RS232 V2.1 TTL Module, no requirements can be made valid opposite the supplier!

6 Contact Information

ASiKS-Engineering
Dr. Andreas Schramm
Am Franzosenbach 6
83558 Maitenbeth
Germany
Tel: +49(0)8076/8897081
E-Mail: info@asiks-engineering.com
Web Site URL <https://www.asiks-engineering.com>

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied. ASiKS-Engineering will not accept any claim for damages howsoever arising as a result of use or failure of this product. Your statutory rights are not affected. This product or any variant of it is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document.

Appendix A – Revision History

Revision History
1.0 Initial Release 14th October 2025