USER MANUAL

Longo USB to RS232/RS485 adapter

LSA-2.USB

Version 1

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User Manual

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STANDARDS AND PROVISIONS: Standards, recommendations, regulations and provisions of the country in which the devices will operate, must be considered while planning and setting up electrical devices.

DANGER WARNINGS: Devices or modules must be protected from moisture, dirt and damage during transport, storing and operation.

WARRANTY CONDITIONS: For product – if no modifications were performed upon and were correctly connected by expert – in consideration of maximum allowed connecting power, we offer warranty for 24 months from date of sale to end buyer. In case of claims within warranty time, which are based on material malfunctions the producer offers free replacement. The method of return of malfunctioned module, together with description and bill, can be arranged with our authorized representative. Warranty doesn't include damage arose from transport or because of unconsidered corresponding regulations of the country, where the adapter is installed.

This device must be connected properly by the provided connection scheme from this manual. Misconnections may result in device damage, fire or personal injury.

If the unit is used in a manner not specified by the manufacturer, the degree of protection provided by the equipment may be impaired.

Product complies to the following standards:

EMC:EN61000-4-3,EN61000-4-6, ETSI EN 301 489-1,

ETSI 301 489-7, 89/336/EEC, 92/31/EEC

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Longo USB to RS232/RS485 adapter LSA-2.USB

1 DESCRIPTION

LSA-2.USB is an USB to RS232 or RS485 optically isolated converter supporting speeds up to 115kbps. It also provides isolated power supply from USB side.
Device does not support hardware handshake signals (RTS, CTS...)

LSA-2.USB can be used as optically isolated serial adapter between PC and different equipment (PLCs, sensors, actuators, instruments...) or between equipment it self. Only one RS232 or RS485 port can be used at the same time. RS485 port is internally terminated with 120 Ohm resistor.

Driver can be downloaded from Smarteh home page.

2 FEATURES

Figure 1: LSA-2.USB
USB to RS232 / RS485 adapter

Table 1: Technical data
Optically isolated RS232 and RS485 ports
Speeds up 115 kbps
Galvanic isolated power supply
Diagnose LEDs
Small compact enclosure

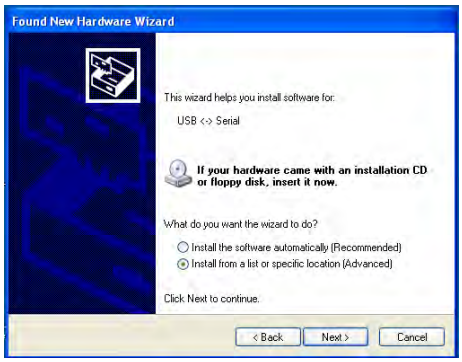
3 USB DRIVER INSTALLATION

On Linux systems (*Ubuntu*, *Arch*, *Fedora*, *Suse*) *Vista* and *Windows 7* operating systems device is already supported with corresponding drivers.

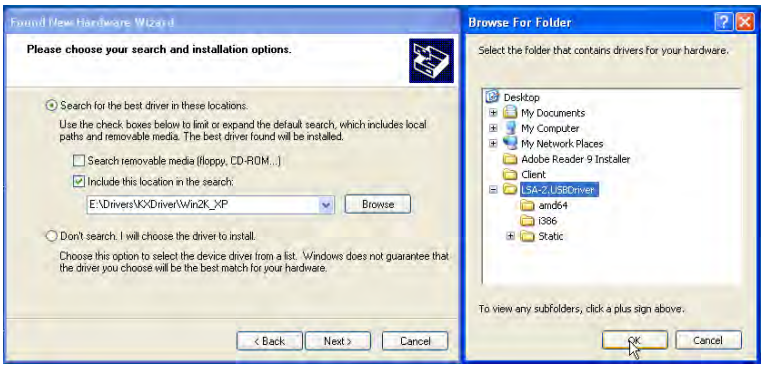
For other Windows OS's (*Win98*, *Win 2000*, *Win ME*, *XP*) please follow procedure described below to install drivers needed for communication with device through virtual COM port.

Start by downloading driver package LSA2USB_driver.zip from *www.smarteh.si* web page. Unzip package and connect device to the PC. Windows should start dialog window for hardware installation as shown below.

Choose option *Yes, this time only* and click on *Next*.



Click on *Advanced option* and click *Next* to continue.



Uncheck option *Search removable media* and check *Include this location in the search*. Browse to a location that you unzipped driver files in first step. Click *Ok* and *Next* to continue and *Finish* in last window.

Serial driver for LSA-2.USB is now installed.

OS will prompt you again for virtual COM port installation. Procedure is the same as the one described above.

4 CABLES AND WIRING

4.1 Connectors description

Figure 2: LSA-2.USB adapter

Table 2: K1

Mini USB connector	USB Data & DC power supply	USB connection to PC or other USB master device

Table 3: K2

RS232-RJ12.1	N.C.	Not connected
RS232-RJ12.2	⊥	Ground
RS232-RJ12.3	+U, 10 V DC / 75 mA	Power supply output
RS232-RJ12.4	RS232: Tx •→	Data transmit output
RS232-RJ12.5	RS232: Rx •←	Data receive input
RS232-RJ12.6	N.C.	Not connected

Table 4: K4		
RS232-DB9M.1	N.C.	Not connected
RS232-DB9M.2	RS232: Rx •←	Data receive input
RS232-DB9M.3	RS232: Tx •→	Data transmit output
RS232-DB9M.4	N.C.	Not connected
RS232-DB9M.5	⊥	Ground
RS232-DB9M.6	N.C.	Not connected
RS232-DB9M.7	N.C.	Not connected
RS232-DB9M.8	N.C.	Not connected
RS232-DB9M.9	N.C.	Not connected

Table 5: K3		
RS485-RJ12.1	N.C.	Not connected
RS485-RJ12.2	⊥	Ground
RS485-RJ12.3	+U, 10 V DC / 75 mA	Power supply output
RS485-RJ12.4	RS485: A	Data line A
RS485-RJ12.5	RS485: B	Data line B
RS485-RJ12.6	N.C.	Not connected

Table 6: K5		
RS485-DB9FM.1	N.C.	Not connected
RS485-DB9FM.2	N.C.	Not connected
RS485-DB9FM.3	RS485: B	Data line B
RS485-DB9FM.4	N.C.	Not connected
RS485-DB9FM.5	⊥	Ground
RS485-DB9FM.6	N.C.	Not connected
RS485-DB9FM.7	N.C.	Not connected
RS485-DB9FM.8	RS485: A	Data line A
RS485-DB9FM.9	N.C.	Not connected

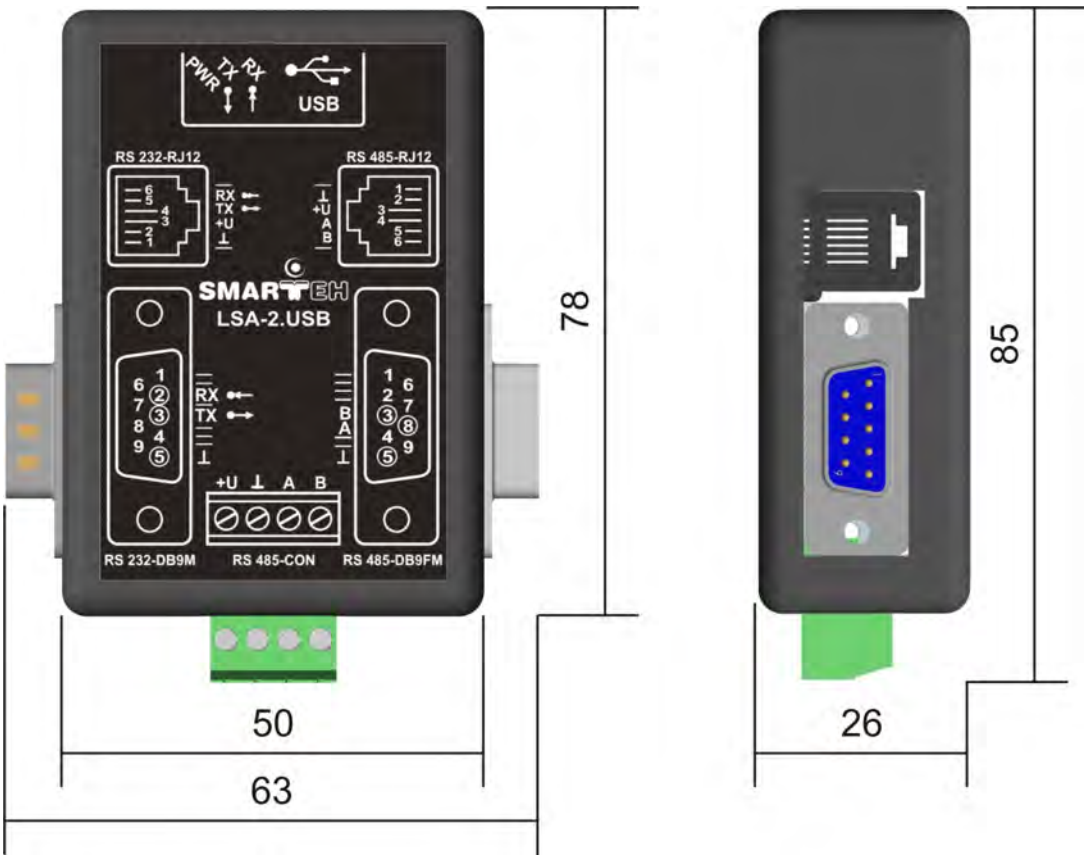
Table 7: K6		
CON.1	+U, 10 V DC / 75 mA	Power supply output
CON.2	⊥	Ground
CON.3	RS485: A	Data line A
CON.4	RS485: B	Data line B

Table 8: LEDs		
LED1.PWR	Blue, LSA-2.USB status	Off: No power supply On: Power supply present
LED2.Tx •→	Red, Tx status	Off: Not transmitting packets On: Transmitting packets
LED3.Rx •←	Red, Rx status	Off: No receiving packets On: Receiving packets

For wiring to connector K6 use standard wire up to 0.75 $mm^{2.}$

4.2 Connecting instructions

Figure 3: Housing dimensions



- Dimensions in millimetres.

Connecting instructions:

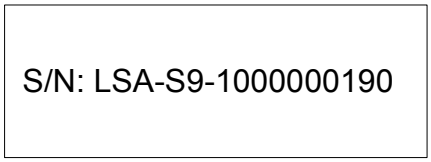
1. Install USB driver on your PC or master USB device.
2. Connect USB cable to LSA-2.USB adapter and then to PC or other USB master device. Blue LED should switch on.
3. Connect one RS232/RS485 port on LSA-2.USB adapter with device you want to communicate with, using corresponding cable. Refer to Table 3 - 7 for proper connection.
4. Inside SW, chosen for your application, select corresponding COM port dedicated to LSA-2.USB adapter. While transmitting red LED and while receiving green LED should blink.

4.3 Module labeling

Figure 4: Labels on housing

Label 1(LSA-2.USB label sample):

Label 2(LSA-2.USB label sample):



Label 1 description:

1. **LSA-2.USB** is the full product name.
2. **P/N:206LSA10002001** is the part number.
   - **206** – general code
   - **LSA** – short product name,
   - **10001** – sequence code,
     - 10 – year of code opening
     - 001 – derivation code
   - **001** – version code (reserved for future HW and/or SW firmware upgrades).
3. **D/C:31/10** is the date code.
   - **31** – week and
   - **10** – year of production.

Label 2 description:

1. **S/N:LSA-S9-1000000190** is the serial number.
   - **LSA** – short product name,
   - **S9** – user code (test procedure, e.g. Smarteh person xxx),
   - **1000000190** – year and current stack code,
     - 10 – year (last two cyphers)
     - 00000190 – current stack number; previous module would have the stack number 00000189 and the next one 00000191.

5 TECHNICAL SPECIFICATIONS

Table 5: Technical specifications	
Power supply	from USB
Max. power consumption without load	0.25 W
Power supply output	10 V DC / 75 mA
Number of RS232	1
RS232 port speed	up to 115 kbps
Number of RS485 ports	1
RS485 port speed	up to 115 kbps
RS485 internal line termination	120 Ω
Dimensions (L x W x H)	80 x 64 x 26 mm
Weight	150 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Transport and storage temperature	-20 to 60 °C
Protection class	IP 30

CHANGES

The following table describes all the changes to the document.

Date	V.	Description
7.4.2011	002	Added note about HW handshake not spupported
5.8.2010	001	The initial version, issued as LSA-2.USB serial adapter *UserManual*.