Programming Tips

If you are programming in VB, you can use and modify the
full source code for the LIN USB Message Center
which is on the Installation CD in the Reference Software
folder. The main source is VB 6.0 (this runs faster than
Visual Studio for USB applications) but Visual Studio
2005 source is also included on the installation CD.

For additional help, the files LINUSB.H (for programming
in C/C++) and LINUSB.BAS (for programming in VB 6.0) and
LINUSB.VB (for programming in VB .NET 2005) are also present
in the Reference Software folder.

Also, in the program folder is the file ISTVAN.CLD which
is a sample CLD file. This is for assigning nodes to
master or slave emulation from a description file that
describes the network the node is emulating on. The
format for these files is described in the LIN
specification. This type of file can be directly read
by the LINUSB drivers and incorporated by the LINUSB
devices.

Latest software Versions as of July 30, 2018

Latest LINUSB.DLL vesion is 2.3.3.0.
Latest driver install package vesion is 1.0.6.
Latest driver and message center install package is 1.0.9.
Latest firmware revision is 50.4.

New Drivers in Install Package 1.0.9 / Driver Package 1.0.6

The latest Windows 10 updates require a driver update.
Please make sure to install the latest driver package if
you are using Windows 10. The latest driver package is
automatically installed if you install the Message Center
1.0.9 or the driver package 1.0.6.

If you are using a 32-bit computer or Windows XP, you may
find that the latest driver package won't install on your
machine (fails to verify the signature). In that case,
install an earlier version of the driver, such as 1.0.8
Message Center or 1.0.5 driver package, which is located
in the "Older Versions" folder.

Make sure to execute the x64 program if you have a 64-bit
computer or the x32 program if you have a 32-bit computer.

New in version 2.3.3.0 of LIN USB DLL

Fixed issue exiting application when no device connected.

Uses driver compatible with Windows 8 and Windows 10.

Please note that the new driver package is signed with a
Digicert SHA2 EV certificate.

Native Windows 7 does not support SHA2 certificates.
You will need to install the following Windows Update:

https://support.microsoft.com/en-us/kb/3033929

Windows 8 and newer have native support for SHA2 certificates.

Windows XP requires Service Pack 3 for SHA2 support.

Warning: with this driver, if you try to install with a LINUSB
device plugged in, the driver installation will fail. Then you
will have to unplug the LINUSB device, uninstall both the windrvr6
based driver and the current driver, and reinstall the drivers,
and then plug in the device(s) again. See the README file in
the driver folder for instructions about individual driver
installation steps.

Problems With Certain Anti-Virus Software

Certain Anti-Virus software may prevent this software from
loading or installing. For example, Avast on Windows 10 will
prevent the installation from completing. It may be necessary
to disable your anti-virus software, such as Avast, during the
installation or first-time running of this software. The root
cause of this is usually because the anti-virus software is
unfamiliar with this software (or any software from small
companies) and utilizes a heuristic based on the philosophy
that "little is known about this software" to block it.
Norton Sonar will also sometimes remove the LIN USB Message
Center. You will need to go into Norton and restore this
application to use it.

Pure 64-Bit DLL Deprecated

Going forward, Silicon Engines will no longer support
the pure 64-bit DLL. If you are using this, then please
contact Silicon Engines and we will decide what to do.
Normally, the 32-bit DLL works both in 32-bit and 64-bit
Windows operating environments so a pure 64-bit DLL should
not be necessary.

Model 9004 No Longer Supported

If you are using Model 9004 and everything is working,
you can keep on using it as long as your Windows system
allows. If your Windows system updates and the drivers
no longer work for the Model 9004, you are encouraged

to upgrade your Model 9004 to the Model 9011. The Model
9011 features improved speed and compatibility with
Windows 8 and Windows 10. The interface to the Model
9004 and the Model 9011 is the same so any program
that uses the Model 9004 will also be able to use
the Model 9011. Contact Silicon Engines at
sales@siliconengines.net about upgrading your
Model 9004 to Model 9011.

New in version 50.4 of LIN USB Firmware

Prevent lock-ups of the model 9011 in the presence of high bus traffic
(close to 100% bus utilization). Eliminate occasional ERROR COULD
NOT COMMUNICATE messages. Fix for receiving messages, particularly
at 19200 baud and 1.3 protocol selected, where wakeup bytes were
erroneously seen as part of the message. Fix for properly reporting
slave-finished messages and not to erroneously report SLAVE NOT
RESPONDING when the device is in master mode. Fixes for lock-ups that
occur when the bus is shorted.

New in 2.0.15 of LIN USB Message Center

Minor changes to be more structured.

New in Version 2.3.1.0 of the DLL

Fixed memory issue. More robust DLL will not drop
any bus traffic. Properly reports frame errors.

New in version 3 of the 9011 Firmware

More robust firmware will not drop any bus traffic.

Latest Installer for 1.0.2 Drivers

The latest installer no longer un-installs the very old 9004 driver.
This has more and more been giving trouble on installations on newer
PC's where the newer installations won't even complete if the old
driver didn't exist on the system beforehand.

Known Limitations With 9004 Device
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1. When the 9004 is configured as a Slave at speeds greater
than 19200 bps using regular LIN transceivers, it can
occasionally miss responding to a message.
2. When the 9011 is configured in "fast 1 stop
bit mode" for baud rates greater than 9600 baud,
the 9004 will detect erroneous frame errors occasionally.
The workaround is not to use fast 1 stop bit mode when
using a 9004 and 9011 in the same system.

If you have a very old 9004 driver on your system from 2005 time-frame,
then please run the utility "UninstallOld9004Driver.exe" from the CD
in the folder "Drivers\drivers J10.21 9004 9011 x32\Old Driver" before

running the regular installation program.

Version 2.0.14 of LIN USB Message Center

This is functionally equivalent to 2.0.12. The only thing that was
corrected in this version was to use the correct pathnames to the
supporting files used by this program (without a double slash).

New in Version 2 of the 9011 Firmware

Very minor bug fixes that should make communication more reliable.

Version 2.0.12 of LIN USB Message Center

This is functionally equivalent to 2.0.11. This is the release
that accompanies the new Jungo-based drivers for the 9004 and
9011 both.

New in Version 19 of 9004 LIN Firmware

Bug fixes for receiving messages that come very close together.

Alternate Version 9 of 9004 USB Firmware

For LINUSB models with serial number 200 and up, there is
an alternate version 9 of USB firmware that is sometimes
programmed in the factory. This is functionally
equivalent to version 7 of USB firmware. If you have
version 6 or 7 in your USB firmware, then you don't
need to upgrade to version 9.

New in Versions 6 and 7 of 9004 USB Firmware

For LINUSB models with serial number 200 and up, you will
need to use alternate version 7 of USB firmware. This is
functionally equivalent to version 6 of USB firmware.
This version adds support for USB suspend. The LINUSB
device will still respond after a PC wakes up from
Standby mode with these latest versions. Previous
versions would require that you unplug and plug in
the device again before it will respond again after
a Standby operation.

Alternate Version 5 of 9004 USB Firmware

For LINUSB models with serial number 200 and up, you will
need to use alternate version 5 of USB firmware. This is
functionally equivalent to version 4 of USB firmware.

New in Version 18 of 9004 LIN Firmware and version 4 of 9004 USB Firmware
and Version 2.0.11 of the LIN USB Message Center
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(1) Support for "FRAM Diagnostic" (2) stack overflow check

in USB firmware (3) potential bug fix for receiving messages
that arrive quickly one after another. The FRAM diagnostic
allows checking to see if the FRAM has been worn out.
The FRAM is rated for 1 billion write cycles so it may
eventually wear out after heavy, heavy use. This check is
added mainly for end-of-line testers that see heavy use.
If the FRAM is seen to be bad, the unit should be returned
for servicing (to replace the FRAM chip). The stack overflow
check is done on the USB module and if the stack overflows,
there will be a fast blink on the lamp and the unit will
stop responding. This will be an indication of internal
corruption. If this occurs, and it is not an EMI event,
then contact Silicon Engines. The potential bug fix for
receiving messages quickly one after another adds to the
reliability of the LINUSB converter.

New in Version 17 of 9004 LIN Firmware

Two bug fixes: (1) wait 1 second before beginning master schedule. This
ensures that when a Clear Buffers command is sent to a Master Node,
the first few messages are always properly received back to the PC
and are not swallowed up due to the "double clearing" that occurs in
a Clear Buffers command where before the master schedule started too
early. (2) when a master schedule is started with delays between
messages that are shorter than the time to transmit the messages
themselves, the old LINUSB module would occasionally generate a
"Bus Busy" error erroneously under those circumstances. Where of course
this can be worked around by increasing the delay between messages in
the master schedule, this bug fix ensures that precaution will be
unnecessary.

New in version 15 of the LIN Firmware and version 3 of USB Firmware
and Version 2.0.10 of the LIN USB Message Center

Support for "fast 1 stop bit" mode (where only 1 stop bit
plus a tiny bit of latency is used between bytes that
are transmitted - if this is not selected, then 2 stop bits
are used - the benefit of 2 stop bits is faster and better
USB communications) and support for "incrementing master
payload" mode, which takes the first 2 bytes in the master
payload and increments their value one at a time as each
message is transmitted which can be used to track whether
any messages are dropped by a slave or listener node.
New in VB 2005 source code: all pointers passed to unmanaged
code are now pinned to prevent occasional crashes that might occur.

New in Version 2.0.9 of the LIN USB Message Center

Bug fix for attempting to add/edit messages while
a log file is in process.

New in Version 2.0.8 of the LIN USB Message Center

Better support for LIN 2.0 LDF (CLD) files.

New in Version 2.0.7 of the LIN USB Message Center

There is some added exception handling that should prevent
rare crashes that can occur when modules are plugged in
or unplugged. Also, a new feature is a "holdoff command"
that is sent while the EEPROM is programming master or
slave mode data. This holdoff command will not be sent
unless a Query Revision operation is performed at least
once before the LinUsbOpen call with the new master or
slave mode data programming command.

Upgrading Firmware

Upgrading firmware can be accomplished through
the LIN USB Message Center. Go to the Configure
screen and select Upload Firmware. Then select
the modules you want to program and browse to
the S19 files that you will use to program them
with.

The version of the 9011 LINUSB module is in two parts,
a major version and a minor version. The major version
is either 5x for regular 9011 software or 4x for bootloader.
If the version is displaying as 4x (40.1 for example) then
regular software must be programmed into the LINUSB module
before it is functional.

The version of the 9004 LINUSB module is in two parts,
a major version and a minor version. The major
version corresponds to the USB module version
and the minor version corresponds to the LIN
module version.

A major version of 2x (such as 20) for the 9004 USB module
indicates this is a "crippled version" of the 9004 which
operates at a slower speed but is compatible with all
varieties of Microsoft Windows.

For USB module version 2 and LIN module version 11,
a bug fix for receiving payload 8 bytes under certain
timing scenarios was made. In LIN module version 10,
the programming of firmware as well as master/slave
tables has been made more reliable. Also, more
reliable communications is now in place in the case
of multiple masters or multiple slave nodes executing
the same slave table.