# RTL LINX1

User Manual v4.0

Introduction

The RTL LINX1 vehicle telematics unit is the In Vehicle Hardware (IVH) part of the RTL Telematics Platform.

The RTL Telematics Platform Data Flow is described below:
- The data is collected by the IVH from the External Inputs.
- The data is stored and processed by IVH until the Mobile Network becomes available.
- The data is then send via Mobile Network and the Internet to the Host Platform Database Server.
- The data becomes available in form of the reports to the authorised users connected to the DataBase via the WebSite using Internet connection and standard browser.

The RTL Telematics Platform System Diagram is below:
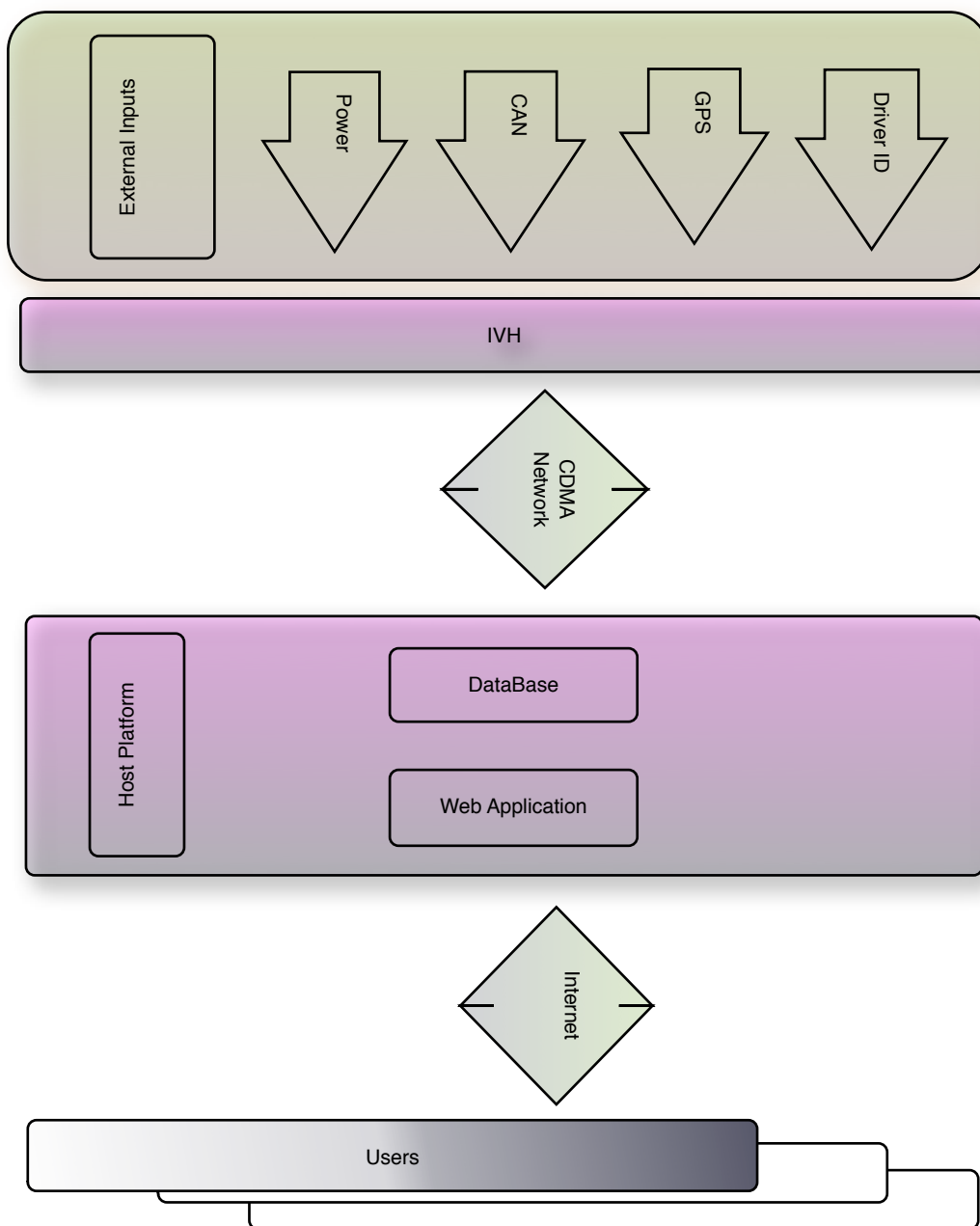
LINX1 Schematic Diagram
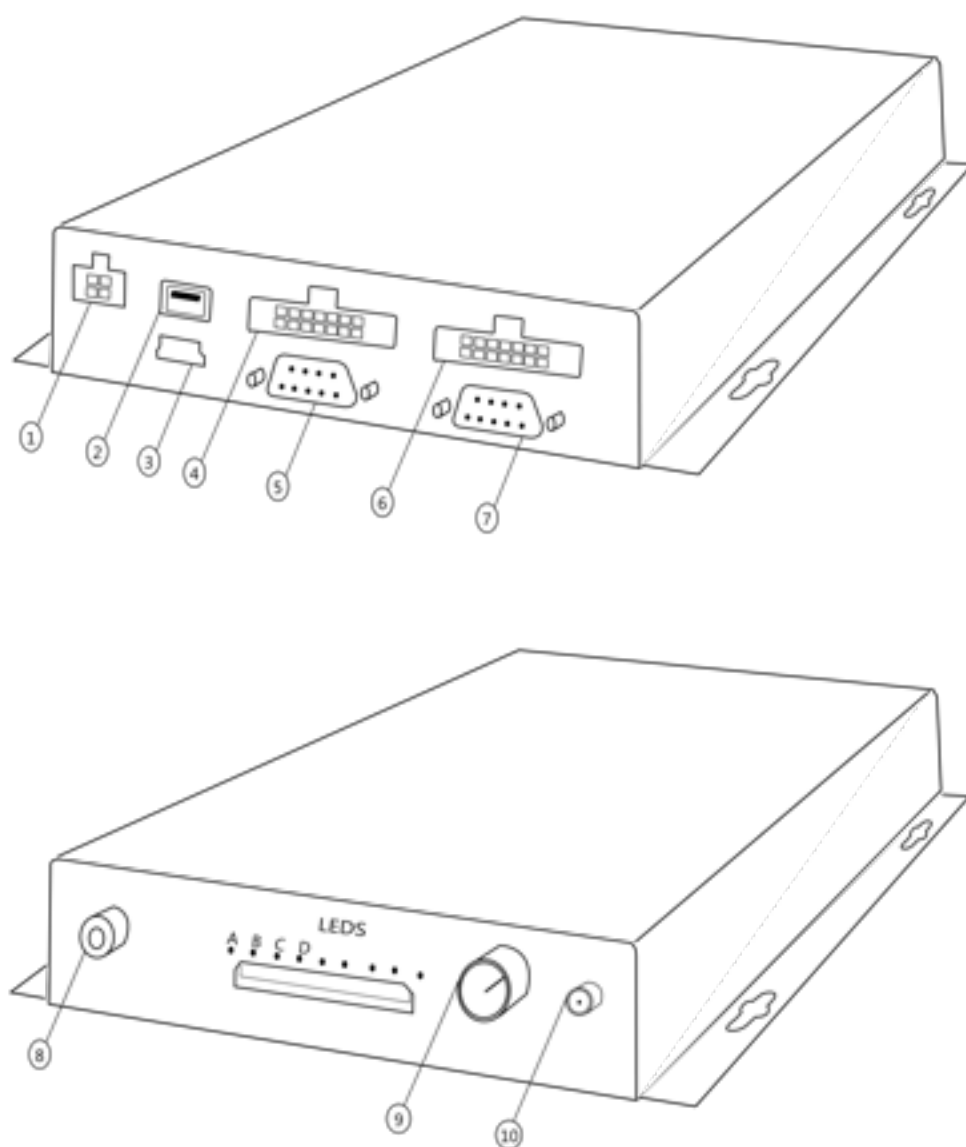
| 1. POWER | 2. USB Host | 3. USB OTG | 4. IO 1 | 5. COM 1 |
| 6. IO 2 | 7. OPTION | 8. VIDEO IN | 9. CDMA | 10. GPS |

Technical Data

Core	Main processor	ARM 926 EJ-S core 32bit 400MHz
	Memory	DDR SDRAM 128MB (Byte) Flash 128MB (Byte) Serial EEPROM for ESN + system options Internal MicroSD card interface
Peripherals	Real Time Clock	Built-in with battery backup
	Dimensions	160(W) x 40(H) x 130.5(D) mm
	Weight	700g
	Housing	Extruded aluminum
	Input voltage	10-48 volts
	Power consump.	160 mA typical
	Indicators	4 bi colored LEDs
	Operation temp.	-25C ... +55C
	GPS	GPS receiver module
	CDMA	1xRTTE
Connections		Power Ignition Sensor PLC 3 axis accelerometer 8x Digital inputs 4x Digital OC outputs 2x CAN 2.06 interfaces J1708 K Line 1 Wire 2x RS232 USB Host USB OTG GPS antenna CDMA antenna Video Option
Software	Operating system	Linux 2.6.22
Approvals	CE marking	According to directive 89/336/EEC (EMC directive)
	e type approval	According to directive 95/54/EC (automotive EMC directive)
	FCC	Pending

Installation Instructions

Full instructions can be found in an Installation Instructions document that depends on the vehicle make/model/year of manufacture.
Location of the telematics box depends on the vehicle make/model/year of manufacture.

Prior to installation check

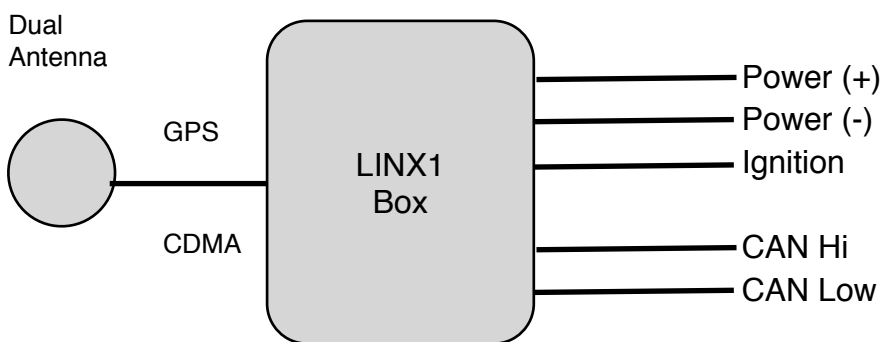The vehicle is in network coverage (for commissioning)
The installation packing note listed items are present and correct
Suitable vehicle CAN connectors are available
The CAN network location is known
A clean well lit weather proof installation bay is available

Wiring Illustration

Step 1 - Choose suitable location and securely fix telematics box
Step 2 - Run and connect power wires
Step 3 - Connect to Vehicle data link
Step 4 - Choose location and fit Aerials
Step 5 - Test & Commission unit

Troubleshooting

Check that all the power is connected
Check that all the cables connected correctly
If none of the above helps please contact dealer for further assistance

Battery replacement procedure

To replace the coin cell battery of the RTC open the case and replace the coin cell battery, close the case.

Connections

Connector	Colour	Pin	Description
CN1 (Power)	Green	1	Ignition
	Blue	2	Not Used
	Black	3	Ground
	Red	4	+12/24Volts

Connector	Colour	Pin	Description	Comments
CN2 Optional (Not used currently)	Orange	1	In 0	connect to OUT0 , < 0V-24V>
		2	In 4	connected with a 100nF CAP , < 0V-24V>
		3	In 1	connect to OUT1 , < 0V-24V>
		4	In 5	connected with a 100nF CAP , < 0V-24V>
		5	In 2	connect to OUT2 , < 0V-24V>
		6	In 6	connected with a 100nF CAP , < 0V-24V>
		7	In 3	connect to OUT3 , < 0V-24V>
		8	In 7	connected with a 100nF CAP , < 0V-24V>
	Yellow	9	Out 0	connect to IN0 , < 0V-24V>
		10	Out 2	connect to IN2 , < 0V-24V>
		11	Out 1	connect to IN0 , < 0V-24V>
		12	Out 3	connect to IN3 , < 0V-24V>
		13	Ground	Connected to GROUND
		14	Ground	Connected to GROUND

Connector	Colour	Pin	Description	Comments
CN3 (Misc)		1	Kline	connected with a 100nF CAP , < 0V-5V>
		2	NC	Null Connection
	Grey	3	J1708A	connected with a 100nF CAP , < 0V-5V>
	Orange	4	J1708B	connected with a 100nF CAP , < 0V-5V>
	Black	5	CAN 0 L	connected to pin6 < CANL1 >, < 0V-5V>
		6	CAN 1 L	connected to pin5 < CANL0 >, < 0V-5V>
		7	CAN Screen	NULL Connection
		8	CAN Screen	NULL Connection
	White	9	CAN 0 H	connected to pin10 < CANH1 >,< 0V-5V>
		10	CAN 1 H	connected to pin9 < CANH0 >,< 0V-5V>
	Purple	11	RS232_UART7_RXD	connect to Pin12 <RS232_UART7_TXD>,< 0V-12V>
	Purple/ Black	12	RS232_UART7_TXD	connect to Pin11 <RS232_UART7_RXD>,< 0V-12V>
	Brown (3m)	13	1-WIRE LED	connected to a LED , <0V-3.3V>
	White (3m)	14	1-WIRE	connected to a iButton holder, <0V-3.3V>
	Grey (3m)	15	Ground	
	Black/ Blue	16	NULL CONNECTION	

Connector	Colour	Pin	Description
J2 (UART1) used for debug purpose		1	NC
	Brown	2	RS232 RX 1
	Red	3	RS232 TX 1
	Orange	4	NC
	Yellow	5	Ground
	Green	6	NC
	Blue	7	RS232 RTS 1
	Purple	8	RS232 CTS 1
		9	NC

Connector	Colour	Pin	Description
J7 (Option Board)		1	Option pin 1
		2	Option pin 2
		3	Option pin 3
		4	Option pin 4
		5	Option pin 5
		6	Option pin 6
		7	Option pin 7
		8	Option pin 8
		9	Option pin 9

Connection notes

1. Video in port is not going to be used in this model.
2. USB host port is used to firmware upgrade purpose and is not going to be used all the time.
3. RS232 is used for debug purpose and is not going to be used all the time.

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.