Intelligent data transfer bridge
ATG to IFSF-LON network

RoSyS V2L Bridge

INSTALLATION MANUAL
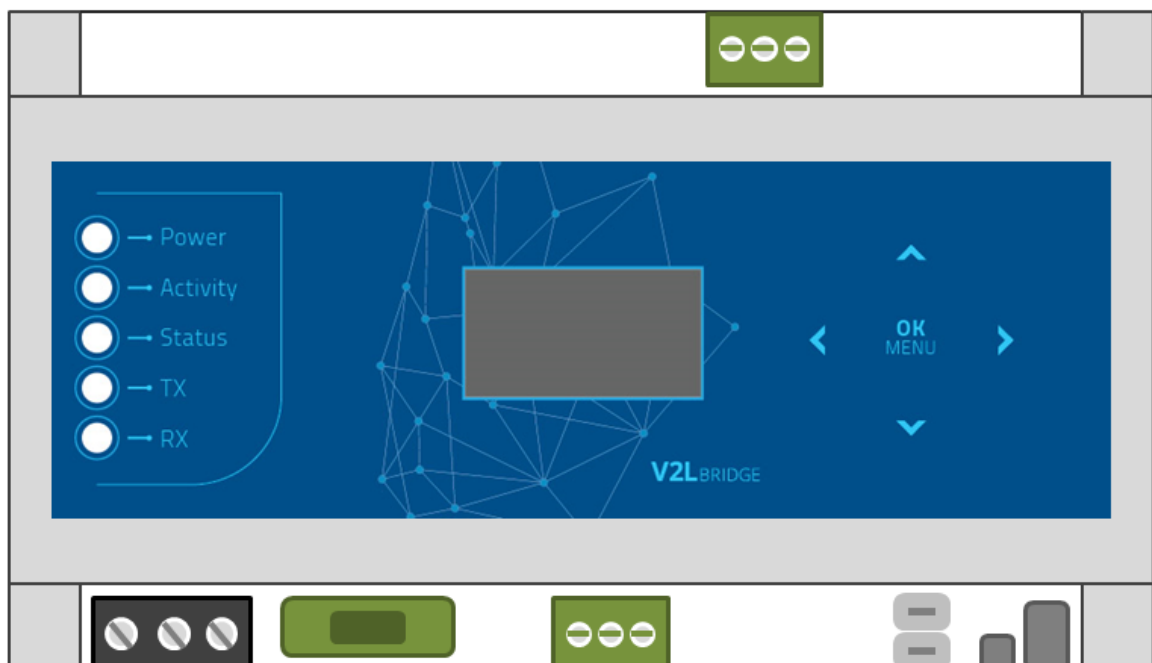
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REVISION HISTORY

| Revision	Date	Description
1.0	21/05/2018	Initial version

1. Scope

This document describes the purpose and the hardware installation of the intelligent data transfer RoSyS V2L bridge for interfacing ATG consoles to the LON-network environment.

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2. Concept

The RoSyS V2L Bridge module is a flexible device capable to provide IFSF-LON interface connectivity of any TLG (tank level gauging) system that supports the standard Veeded-Root communication protocol and connects it to IFSF-LON based POS system(s) and fuel-dispensers.

For the external control device (CD-POS) the communication with RoSyS V2L appears fully transparent as it is connected to standard TLG. This control is simplified with no need of any changes from POS side. On the other hand the RoSyS V2L Bridge is capable to listen all of the fuel-dispensers connected to the LON-network and send to the TLG information about their ongoing deliveries (by using the B-C-D commands) and easily allows the BIR functionality from the TLG to be used.
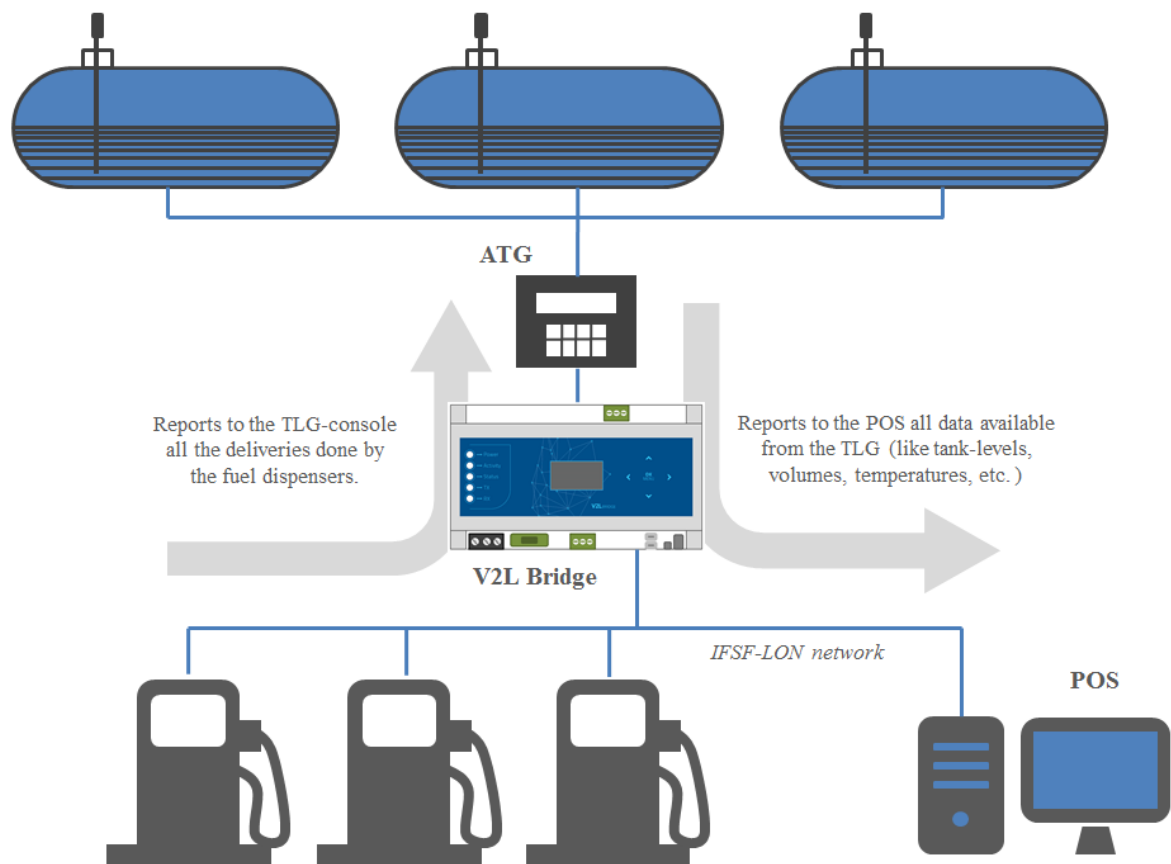
3. Connectivity

On figure-1 below is given a top view of RoSyS V2L Bridge with the position of all connectors and their index. The terminals description of each connector is given in the dedicated tables of the sub-chapters after this chapter. The connectors shown in light-grey (X7 and X8) are not populated but foreseen on the PCB for future use on different firmware releases.
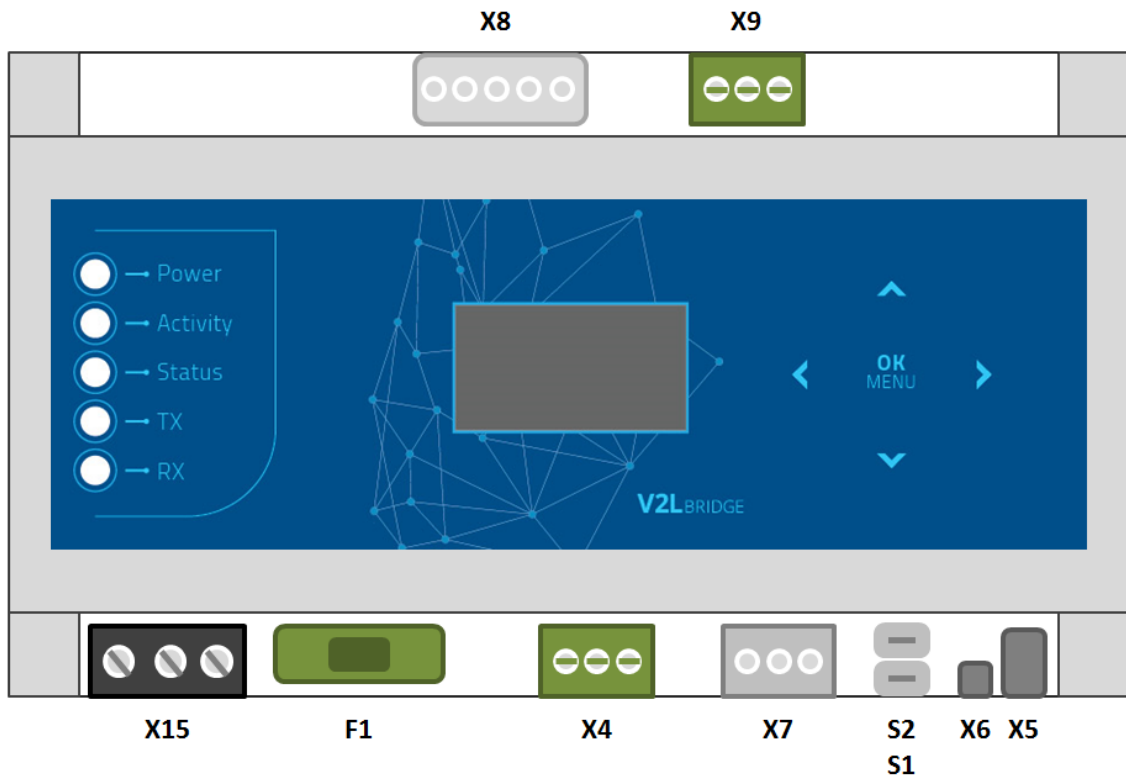
Figure 1 – V2L (Top View) - Connectors position

Connectors, buttons and fuses - purpose and description:

Index	Function
X15	Main power connector
F1	Protection Fuse – type: T1AL250V
X4	ATG connection over RS-232 interface
X7	Debug/Auxiliary RS-232 interface (not populated)
S1 and S2	Buttons – used for cold-start reset
X6	Micro USB-B device (not used in the current firmware release)
X5	USB 2.0 connector – for firmware update and loggings
X9	LON interface connector
X8	RS422/RS485 connector (not populated)

3.1. Connector X15

X15 is the connector where the main power is connected to RoSyS V2L Bridge. Below diagram describes the power-wires positon:
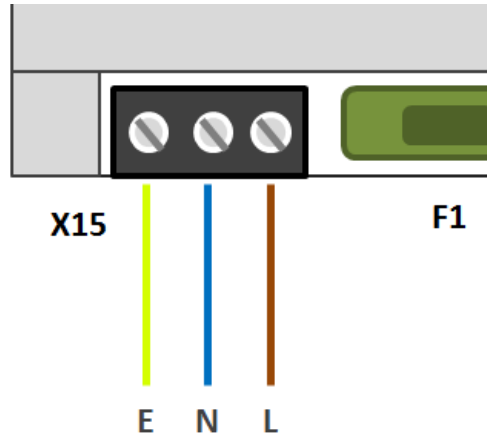

Figure 2 – Main power connection to V2L

See the X15 terminals description in the table below:

POWER SUPPLY 110-220V AC		
E	**N**	**L**
Earth	Neutral	Line

CAUTION: High voltage exists in and is supplied to the device. A potential shock hazard exists. Always connect and disconnect the power terminals when the main power is off!

3.2. Connector X4

This connector provides RS232 interface. X4 is used for serial RS-232 communication with the ATG console.

See the table below for detailed terminals description (note: these are the directions of the signals from RoSyS V2L Bridge prospective):

RS232 to ATG Pins		
1	2	3
Rx	GND	Tx

The diagram below shows a typical connection to the ATG console over RS-232 interface. Only transmit (Tx), receive (Rx) and ground lines are used, none of the handshaking signals should be taken into consideration.
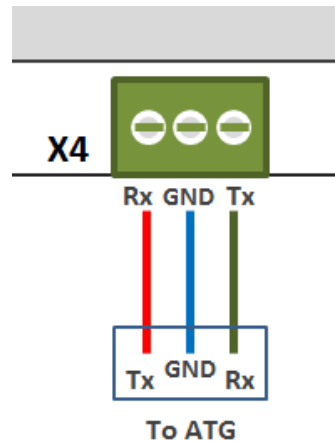

Figure 3 – Connecting V2L to an ATG console

3.3. Connector X5

USB host connector. Standard USB 2.0 type-A jack connector – currently used for firmware update as well as capturing of debug information on log-files.

3.4. Connector X6

USB device. Micro USB-B connector. Will be used in future software releases.

3.5. Connector X7

Another RS-232 interface connector used for debug purposes. DO NOT CONNECT.

3.6. Connector X8

RS422/RS485. Serial communication port. Will be used in future software releases.

RS422/RS485 Pins				
1	2	3	4	5
RX+	Rx-	COM	Tx+	Tx-

3.7. Connector X9

LON interface connector. X9 is the interface connector that connects RoSyS V2L Bridge to the LON-network. As the LON interface is two-wire differential there is no polarity of the terminals.

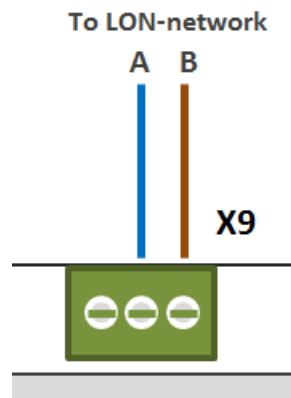| LON Pins		
1	2	3
Earth (N.C.)	A	B

Figure 4 – Connecting RoSyS V2L Bridge to the LON-network

4. USER INTERFACE – INDICATION LEDs and CONTROL KEYs

4.1 BUTTONS S1, S2

The buttons S1 and S2 are used to set the module in preliminary defined state according to IFSF-LON specification. By pressing and keep both of them pressed in power-off state and power-on the device all of the configuration parameters are reset to their default values.

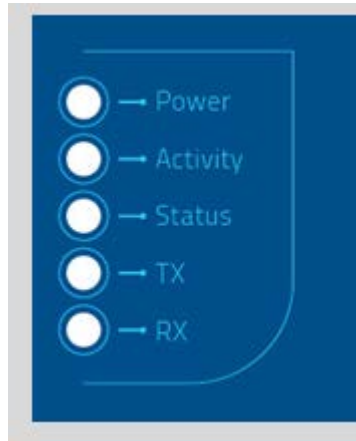## 4.2 INDICATION LEDs

- Overlay Panel:

Figure 5 – RoSyS V2L Bridge – Overlay LEDs position

LED Name	Function	ON condition	OFF Condition	Color
POWER	Indicates when the main power is applied to V2L	Main power ON	Main power OFF	Orange
Activity	Indicates the proper working of the device.	1 sec interval		Green
Status	Indicates errors in the system.			Green – OK RED - problem
TX	Indicates transmit line of RS-485 communication.[1]			Green.
RX	Indicates receive line of RS-485 communication.[1]			Red.

[1] The current version of RoSyS V2L Bridge software does not use RS485 interface and these lines remain inactive. Respectively the TX and RX LEDs are always in OFF-condition.
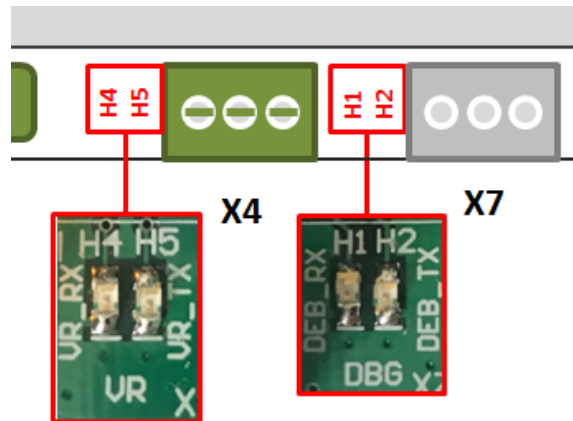
- LEDs for X4 and X7 connector

Figure 6 – RoSyS V2L Bridge – X4 and X7 related LEDs position

LED Name	Function	ON condition	OFF Condition	Color
H1	X7 (ATG conn) Rx			Red
H2	X7 (ATG conn) Tx			Green
H4	X4 (DBG conn) Rx			Red
H5	X4 (DBG conn) Tx			Green

- LEDs for X9 connector

Figure 7 – RoSyS V2L Bridge – X9-related LEDs position

LED Name	Function	ON condition	OFF Condition	Color
H6 - LON RST	LON Reset state	Reset is applied	Reset is released	Red
H7 - LON SVC	Service message	Service message is ongoing		Green
H8	LON Rx			Red
H9	LON Tx			Green

4.3 CONTROL KEYs

Figure 8 – RoSyS V2L Bridge (Top View) – Control keys position

Name	Function
OK / MENU	When RoSyS V2L Bridge is in the main screen by pressing this key it enters the menu. If modifying a parameter from the settings pressing this key confirms the changes.
UP	Navigate through the menus or the parameters UP. Increasing the value of the parameter with 1.
DOWN	Navigate through the menus or the parameters DOWN. Decreasing the value of the parameter with 1.
LEFT	Go BACK from sub-menu. Confirms a parameter change.
RIGHT	Go NEXT to a sub-menu. Select a parameter to be modified.

5. CONNECTION DIAGRAM

The below diagram describes graphically the way of connecting RoSyS V2L Bridge for bridging the ATG console with the IFSF-LON network where the POS systems(s) and the fuel dispensers are.
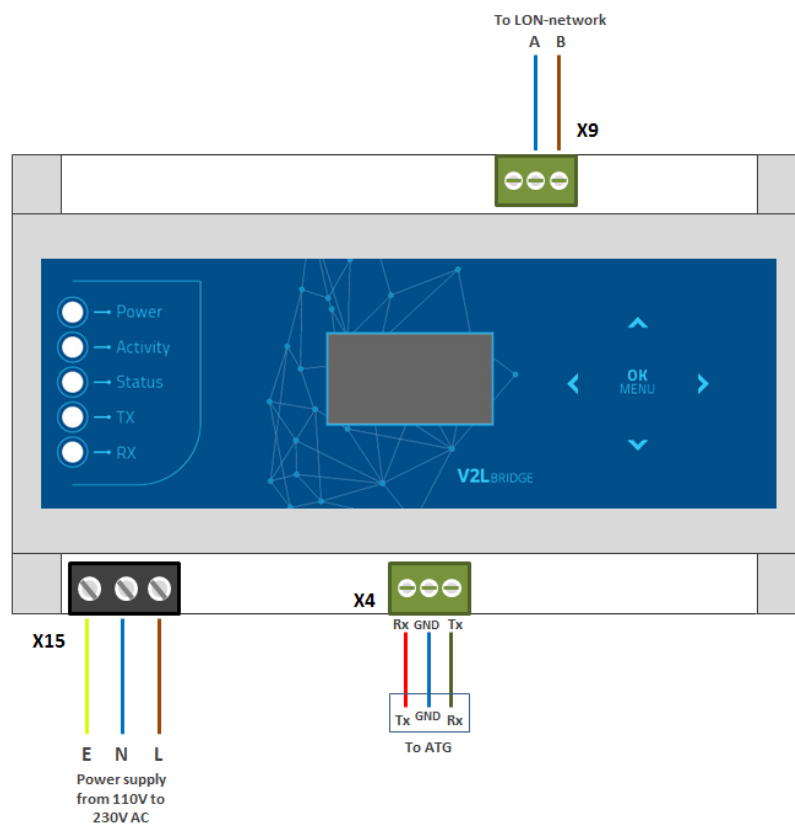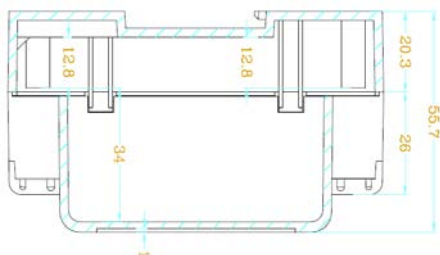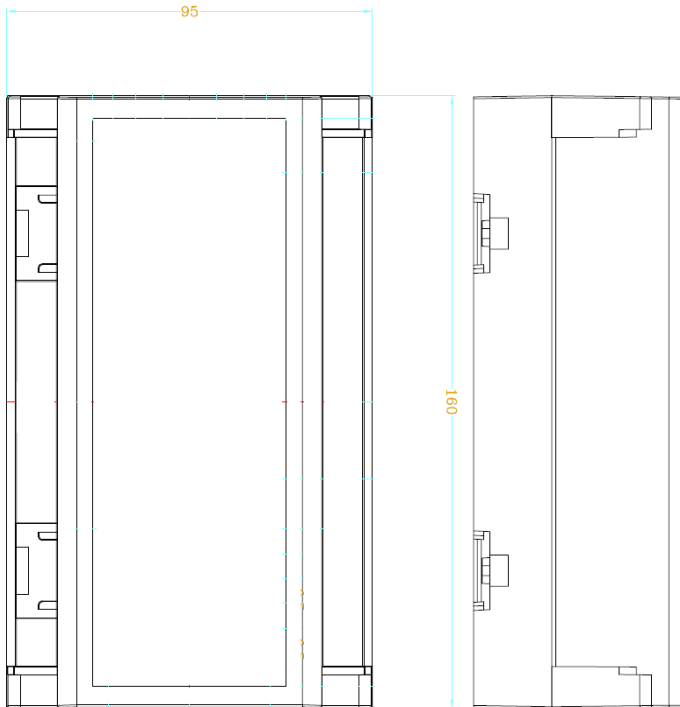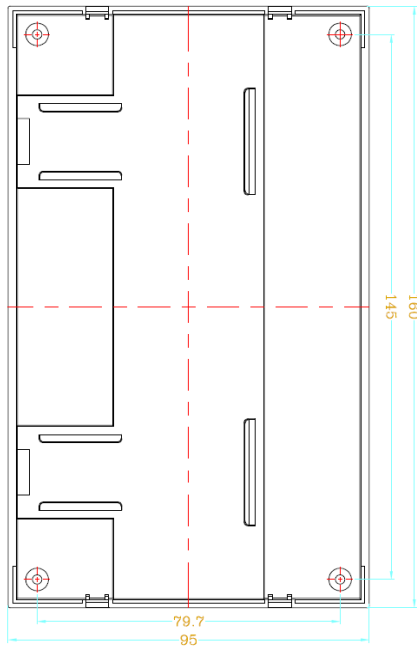

Figure 9 – RoSyS V2L Bridge– typical connection diagram

6. MECHANICAL DIMENTIONS

7. TECHNICAL DATA

Parameter	Range/Type	Remark
Operating Temperature	0 – 40 °C / 32 – 104 °F	
Supply Voltage	100 V – 270 V AC	
Sealing	IP20	
Material	ABS Plastic	