Ultrasound Solutions

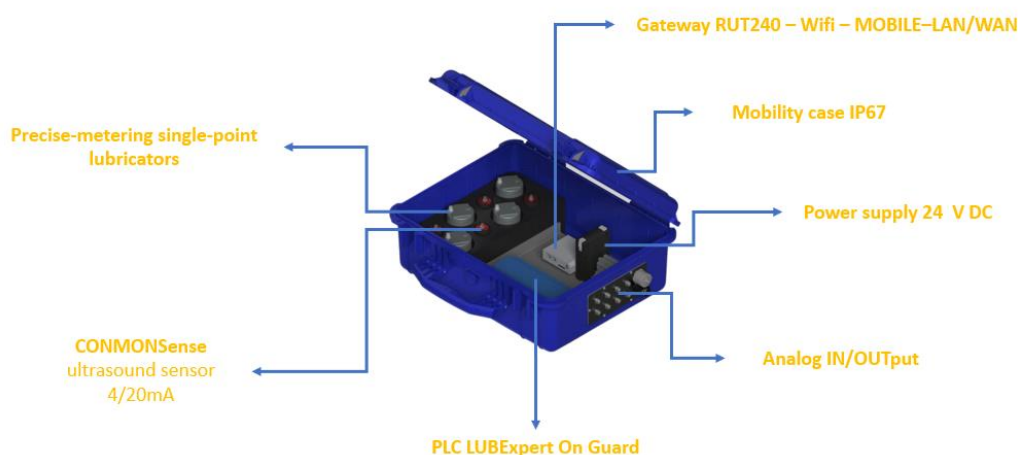| Commercial document	DC. SRL.DAT.001

Datasheet LUBExpert ON-GUARD
Mobility case configuration

Description

LUBExpert ON-GUARD, installed in its mobile case, is a 4-channel online monitoring system designed for ultrasound-assisted lubrication. The demonstration unit enables the smooth relubrication of assets, only when needed, with the appropriate amount of lubricant. Once configured, its built-in web server is capable of controlling compatible mono-point lubricators, guided by the patented SDT LUBrain algorithm, or any alternative relubrication mode to match your existing procedures. Access to the LUBExpert ON-GUARD Web server is possible through various networks (WIFI, WAN/LAN, MOBILE using a router preconfigured by SDT), and it requires no additional software installation. Data is hosted by the system, displayed in separate charts organized by channel, and can be accessed and exported to any client system compatible with Modbus TCP.

- Gateway RUT240 – Wifi – MOBILE–LAN/WAN
- Mobility case IP67
- Power supply 24 V DC
- Analog IN/OUTput
- PLC LUBExpert On Guard
- CONMONSense ultrasound sensor 4/20mA
- Precise-metering single-point lubricators

Specifications:

General	
Function	Smart ultrasound assisted lubrication system
Operable with	SDT CONMONSense RSC 101 TRUE 4-20mA

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		Contact Sensor (see specifications)
		Perma STAR CONTROL (see specifications)
Number of lubrication channels		X4 (Analog Inputs + Relay Outputs)
USB port		4 Host 2.0 (debug or offline update)
Status indicator		RGB LED
Power supply	V	100-240 VAC required
		Power cable not provided
Power consumption @24 V DC	W	20 W max, PLC
		0.5 W/AI max (per sensor)
(all included)		1.2 W/RO (per lubrication drive)
Reverse polarity protection		Yes
AC/DC converter (included)		Model UNO-PS/1AC/24DC/30W - Phoenix contact (see specifications)

System features		
Operating system		Linux
PLC		Unipi Neuron L533
Application installed		SDT LUBExpert ON-GUARD WEB server
CPU		Quad Core
Frequency clock	GHz	1.5
RAM	GB	2
Update mode		Via SDT ON-GUARD tool or USB
Memory Capacity	GB	32 (SD card)
Network interface	X1	LAN 1Gbit (PLC port ETH)
Default IP address (static configuration)		10.8.2.150 (port: 80)
Communication mode		Static/DHCP
Industrial communication		MODBUS server, TCP port 503
		*see user manual for register map
Data format (from the GUI)		csv file
Router/Gateway @10.8.2.1 (port 80) Teltonika RUT 240/241 preconfigured by SDT		- WIFI 2.4 GHz (access point and/or client)
		- LAN/WAN
		- Mobile (Sim card + registration on RMS required)
Mass	g	492 (PLC only)
Operating conditions		0 °C ... +55 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapor and fog
Storage conditions		-25 °C ... +70 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapor and fog
Degree of protection (IEC 529)		IP 65 for the mobility case

Inputs/outputs		
		Analog Inputs (sensors)
Number of AI		4
Sampling rate	Hz	100
Type of data		Static (RMS only)
DC range	mA	4 to 20, converted in $dB_{[\mu V]RMS}$
Conversion factor (linearization)		0.2 $mA/dB_{[\mu V]RMS}$
Ultrasound measurement range	$dB_{[\mu V]RMS}$	[20-100]
ADC resolution	bits	16
Monitoring period		- 1 ultrasound reading every second

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|		
		- 1 T° reading every 1 minute
Switch mode Ut/T°		Digital output (DO1.1)
Default status		Ultrasound reading
Storage strategy		1 ultrasound value /hour + 1 T° value/hour (averaged based on the acquisition time) + lubrication history (initial reading, final reading, last added qty, time, status)
Points type		Lubrication point
Lubrication strategy/triggering options		- Free mode/Manual - Time based/Operating time - On Alarm + occurrences
Replenishment modes		- Predefined amount of lubricant - SDT LUBrain
		Relay Outputs (compatibilities with single-point lubricators)
Number of Relay Outputs		4
Default status		NO, connected to 24 V
Type of lubrication drive		Electromechanical (24 V, 1.2 W max)
Mode		Impulse control required (configurable on PERMA star control)
Operating principle		1 voltage impulse provided by the PLC (24 V DC + discharge duration)= X cm^3 (cc)
Dispense rate	cm^3	Configurable [cc/impulse]
Default compatibility (recommended, Lubricant not supplied)		Perma STAR CONTROL (see specifications) *Contact SDT for the validation of additional lubricators*
Synchronous pulse protection		Multiple lubrication orders are placed on a waiting list
Mechanical		
Mounting		PLC + AC/DC converter + router installed + terminal block on Standard 35 mm DIN rail Prewired configuration
Installation		Plastic mobility case
Wire section (internal)	mm²	0.5
Type of cable		4P-M 8FS- FREE END
Recommended max cable length	m	30 / 100 [feet] (EMC tests not guaranteed beyond)
External connectors		4x inputs M8 M 4x outputs M8 M 1 cable gland for power supply 1 Ethernet port 10/100 (LAN/WAN)
Size	mm	503 x 406 x 193 (Mobility case) 140 x 90 x 60 (PLC only)
Weight	g	TBD
Operating conditions		0 °C … +55 °C, relative humidity 10 % … 95 %, without aggressive substances, condensing vapor and fog
Storage conditions		-25 °C … +70 °C, relative humidity 10 % … 95 %, without aggressive substances,

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		condensing vapor and fog
Degree of protection (IEC 529)		IP 65
Warranty & support		
Warranty		2 years except for the PERMA STAR CONTROL 2.0

NB: Additional details are available from the download section of SDT website at www.sdtultrasound.com

Kit composition (FS.SRL.DUM.001):

Sub article code	Quantity	Description
FU.SRL.CBOX.001	1	SRL-CUSTOM CASE DEMO UNIT + accessories, prewired
SI.PLC.UNIPI.001	1	PLC UNIPI NEURON L533 + LUBEXPERT ON-GUARD
FA.VIG.NTW.001	1	ROUTER Teltonika RUT 240/241 preconfigured by SDT
SI.LBX.PRT.004	4	PERMA STAR CONTROL 2.0
FU.SEN.RSC.101	4	CONMONSENSE RSC US STAT 4-20 mA
FU.RSC.CABL.005.100	8	CABLE M8 4PM<>M8 4 PF, SHIELDED, 10 m
SIMSENSCP2MP.01-C	4	MOUNTING PAD

Default network configuration:
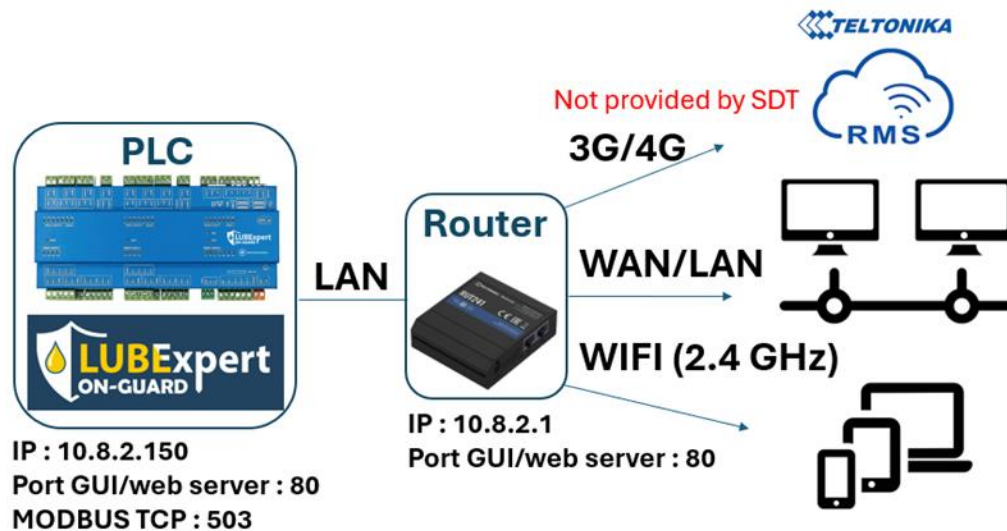
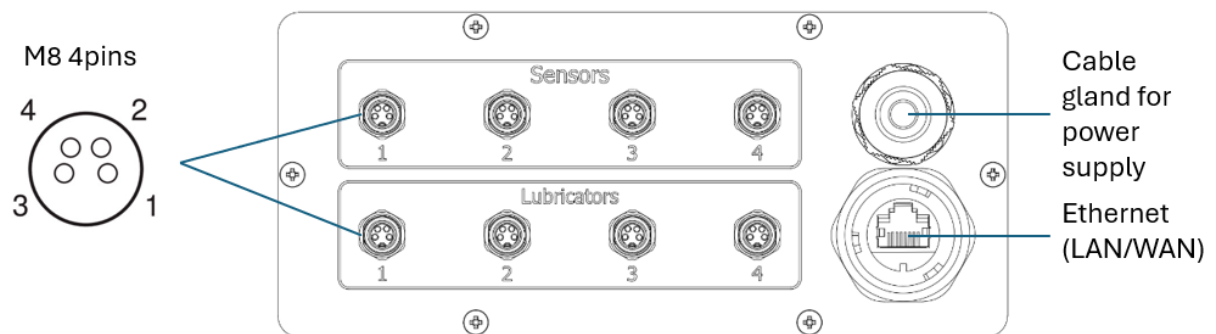# Default wiring diagram:

Overview
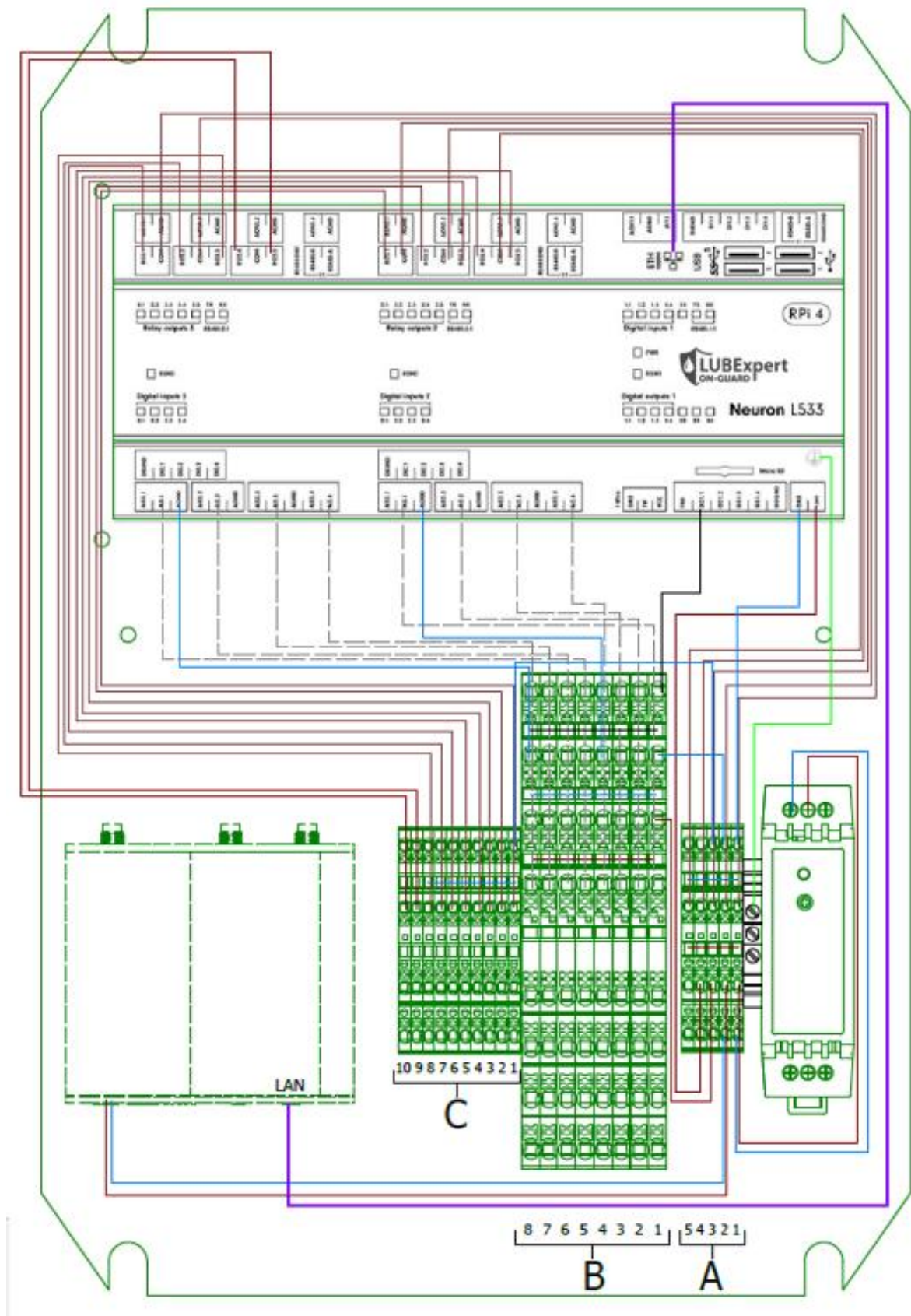
Terminal block:
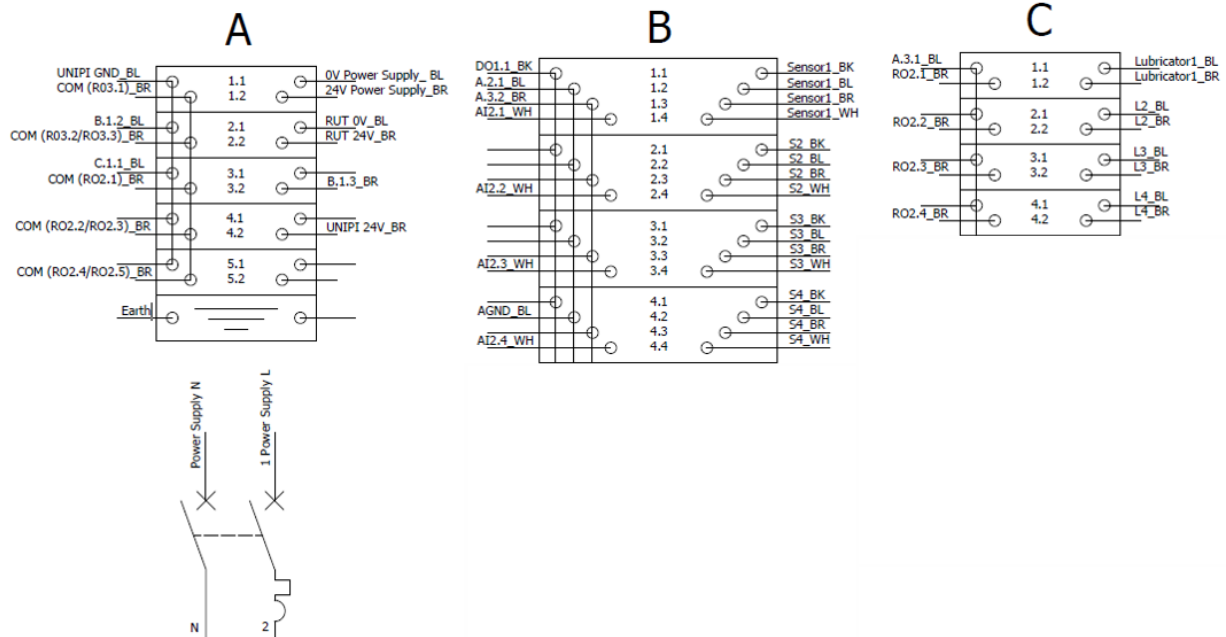
Wire section 0.5 mm²: BK = **Black**, BL = **Blue**, BR = **Brown**, WH = White

| Channel	Block B: Analog Input (AI)	Block C: Relay outputs (NO)
1	B(1:4) : [DO.1.1, AGND, 24 V, AI2.1]	C(1:2) : [RO2.1, COM/24 V]
2	B(2:4) : [DO.1.1, AGND, 24 V, AI2.2]	C(2:2) : [RO2.2, COM/24 V]
3	B(3:4) : [DO.1.1, AGND, 24 V, AI2.3]	C(3:2) : [RO2.3, COM/24 V]
4	B(4:4) : [DO.1.1, AGND, 24 V, AI2.4]	C(4:2) : [RO2.4, COM/24 V]

Interface:

Mobility case side panel

Inputs/outputs pinout

M8 4pins

| Electrical connection	Sensors (CONMONSENSE RSC.101)	Lubricators (PERMA STAR CONTROL)
1	Power supply (24 V DC)	Power supply (24 V DC), relay NO
2	Signal output	Not used
3	Ground	Ground
4	Communication (switch T°/Ut)	Not used

Quick connection guide (PLC + router, installed in the mobility case)

The LUBExpert ON-GUARD Web server is accessible via its IP address

- Finalize wiring and power on the system.
- Plug in the antennas (MOBILE and/or WIFI) to the router, if necessary
- On your client PC, connect to WIFI SSID "**LUBExpert On-Guard**"
  - o   Default password: **MQUdWNOm** (WPA2-PSK)
- Open a web browser, type the default IP (10.8.2.150) in the address bar to access the LUBEXpert ON-GUARD home menu (GUI)
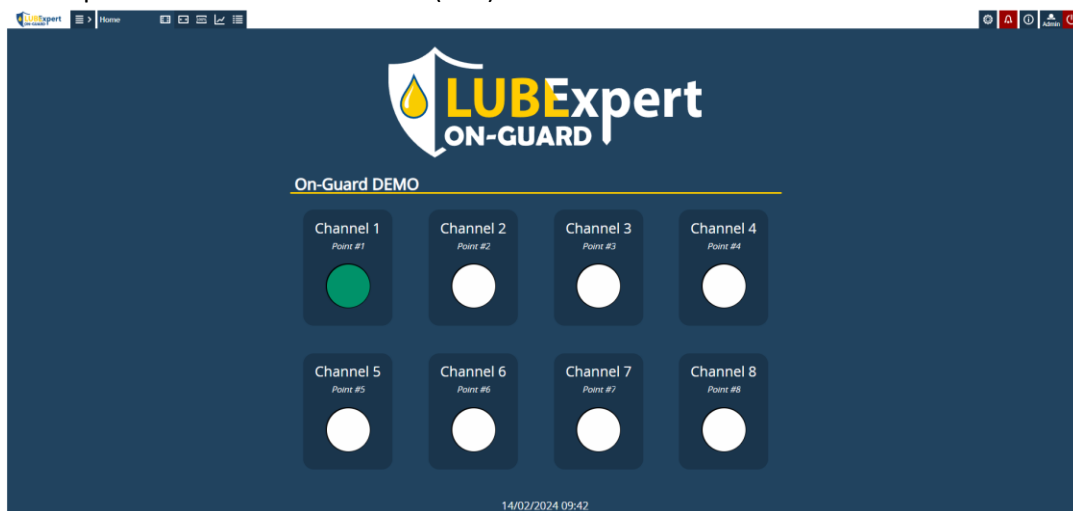
- At the top right hand corner, the default access is defined as Visitor. Click on icon ![Visitor] then sign in as **Username** (password : **Password**) to configure your unit.
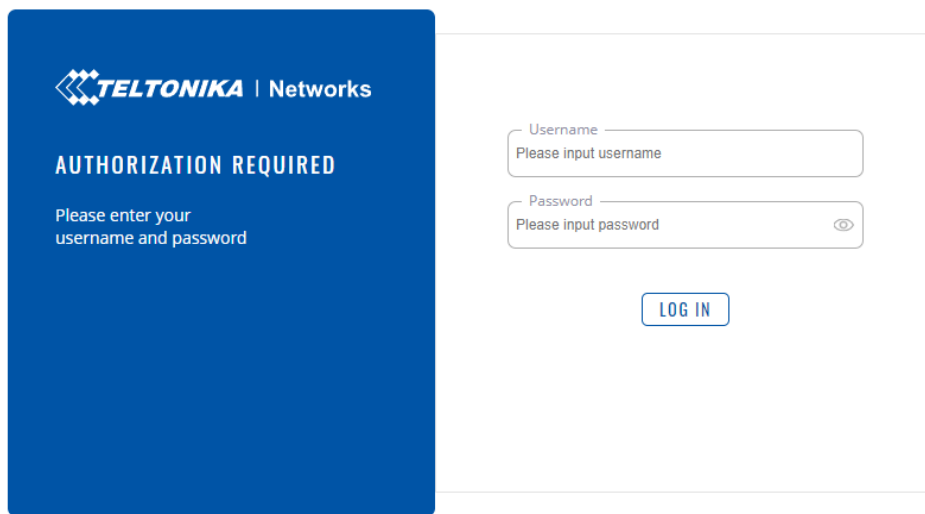
- Connect the sensors and the lubricators (configured in impulse mode) to the unit
- To access the router settings (preconfigured by SDT), open a new tab. Type the default IP address (10.8.2.1) in the address bar then sign in as **admin** (password : **SnE9qica**)

Note: SDT ON-GUARD software might be required to modify certain settings.
Note: Adjust your network settings according to your own network configuration.

SDT recommandations

- Refer to the user manual for detailed instructions and comprehensive guidance on the installation, configuration, and maintenance procedures.
- Consult competent profesionnals for the installation. SDT strongly encourages the customization of the pre-wired assembly to align with the specifications of your electrical installation. It is advised to engage with your electrical and/or automation department to potentially enhance the default assembly with additional elements like complementary protections, switches, wiring of alarm relays, etc. If necessary, consider replacing the default power supply (30 W max).
- The PLC/ON-GUARD system is accessible via a configurable IP address. For network installation, it is recommended to consult your IT department. Ensuring proper network configuration is essential for seamless operation.
- Prefer using shielded cables for Analog Inputs/Sensors and standard cables for relays/lubricators.
- The mono-point lubricator Perma STAR CONTROL has been validated by the SDT Team. It is recommended to use this lubricator for optimal compatibility and performance. Refer to the

corresponding documentation (specifications and installation guide) for the installation of perma STAR VARIO lubrication systems. For mounting accessories and lubricant cartridges that are not provided by SDT, please contact Perma.

- A maximum recommended cable length of 30 meters/100 feet has been established based on EMC (Electromagnetic Compatibility) tests. Beyond these limits, the stability of the measurement is not guaranteed by SDT. The client is responsible for assessing the impact of their environment on the accuracy of the measurement.

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3	CMA 2024/02/21	Production version	CGI
2	CMA 2023/02/09	Beta-version	RGO
1	CMA 2022/10/28	Original version (alpha-test)	RGO
Ver.	Editor	Nature of modification	Verified

The information herein is believed to be accurate to the best of our knowledge.
Due to continuous research and development, specifications are subject to change without prior notice.

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