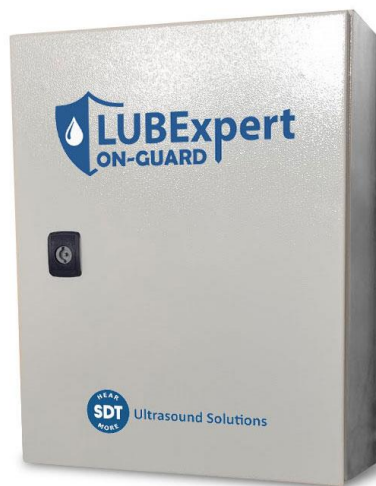


Datasheet LUBExpert ON-GUARD

Description

LUBExpert ON-GUARD is an 8-channel online monitoring system designed for smart ultrasound-assisted lubrication. The system, installed in an industrial enclosure, enables smooth relubrication of assets only when needed, with the appropriate amount of lubricant. Once configured, its built-in local web server can pilot compatible lubricators guided by the patented SDT LUBrain algorithm or any alternative relubrication mode to fit your existing procedures. Access to LUBExpert ON-GUARD web server is handled through the local network, requiring no additional software installation or licensing. Data is hosted by the system, displayed in separate charts organized per channel, and remains available/exportable to any client system compatible with Modbus TCP.



Features

- 8 Analog Inputs (AI) compatible with COMMONSENSE RSC.101 TRUE 4-20 mA
- 8 configurable Relay Outputs (RO) to pilot electromechanical lubricators
- 2 Relay Outputs (RO) for the alarms
- Continuous monitoring of RMS Ultrasound and T° (Static measurements)
- Lubrication strategy based on multiple criterion (replenishment mode and triggering options)
- Intuitive LUBExpert ON-GUARD web server installed in a PLC
- Data available in MODBUS TCP

Specifications

| General | | |
|---|-----------------------|--|
| Function | | Smart ultrasound assisted lubrication system |
| Operable with | | - SDT COMMONSense RSC 101 TRUE 4-20mA Contact Sensor - Single point electromechanical lubricators |
| Number of lubrication channels | | x8 (Analog Inputs + Relay Outputs) |
| USB port | | 4 Host 2.0 (debug or offline update) |
| Status indicator | | RGB LED |
| Power supply | V | 24 V DC |
| Power consumption (max) | W | < 20 including PLC, sensors and lubricators |
| 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 Storage | GB | 32 (SD card) |
| Network interface | X1 | LAN 1 Gbit |
| 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 |
| Inputs/outputs | | |
| | | Analog Inputs (sensors) |
| Number of AI | | 8 |
| Sampling rate | Hz | 100 |
| Type of data | | Static (RMS only) |
| DC range | mA | 4 to 20, converted in dB _{[μV]RMS} |
| Conversion factor (linearization) | | 0.2 mA/dB _{[μV]RMS} |
| Ultrasound measurement range | dB _{[μV]RMS} | [20-100] |
| ADC resolution | bits | 16 |
| Monitoring period | | -1 ultrasound reading every second -1 T° reading every minute |
| Switch mode Ut/T° | | Digital output (DO1.1) |
| Default status | | Ultrasound reading (RMS) |
| Storage strategy | | 1 ultrasound value/hour + 1 T° reading/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 | | <ul style="list-style-type: none"> Free mode/Manual Time based/Operating time On Alarm + occurrences |
| Replenishment modes | | <ul style="list-style-type: none"> Predefined amount of lubricant SDT LUBrain |
| Relay Outputs (lubricators) | | |
| Number of Relay Outputs | | 8 |
| Default status | | NO, connected to 24 V |
| Type of drive | | Electromechanical (24 V) |
| Mode | | Impulse control required |
| Operating principle | | 1 voltage impulse provided by the relay (24 V DC + discharge duration) = X cm ³ (cc) |
| Dispense rate | cm ³ | Configurable [cc/impulse] *must be configured in the lubricator |
| Default compatibility (recommended, Lubricant not supplied) | | Model Perma STAR CONTROL (see specifications) <i>Contact SDT for the validation of additional lubricators</i> |
| Synchronous pulse protection | | Multiple lubrication orders are placed on a waiting list |
| Relay Output (Alarms) | | |
| Number of Relay | | 2 |
| Default status | | NO, not connected to 24 V |
| Mechanical | | |
| Mounting | | Standard 35 mm DIN rail |
| Installation | | Vertical position Pre-wired configuration installed in a Coated steel enclosure |
| Connection | | Terminal blocks provided with the unit |
| Wire section (internal) | mm ² | 0.5 |
| Type of cable (sensor-PLC) | | 4P-M 8FS- FREE END |
| Recommended max cable length | m | 30 / 100 [feet] (EMC tests not guaranteed beyond) |
| Connection in/out | | <ul style="list-style-type: none"> Block B - sensor RSC.101 (shielded) Block C - Lubricator Perma |
| Size | mm | 141 x 90 x 60 (PLC only) 500 x 400 x 155 (enclosure) |
| Mass | g | 492 (PLC only) |
| Operating conditions (PLC) | °C | 0 °C ... +55 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapor and fog |
| Storing conditions (PLC) | °C | -25 °C ... +70 °C, relative humidity 10 % ... 95 %, without aggressive substances, condensing vapor and fog |
| Degree of protection (IEC 529) | | IP 20 (PLC) IP 65 (Steel enclosure) |
| Warranty & support | | |

| | | |
|----------|--|---|
| Warranty | | 2 years except for the PERMA STAR CONTROL 2.0 |
|----------|--|---|

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

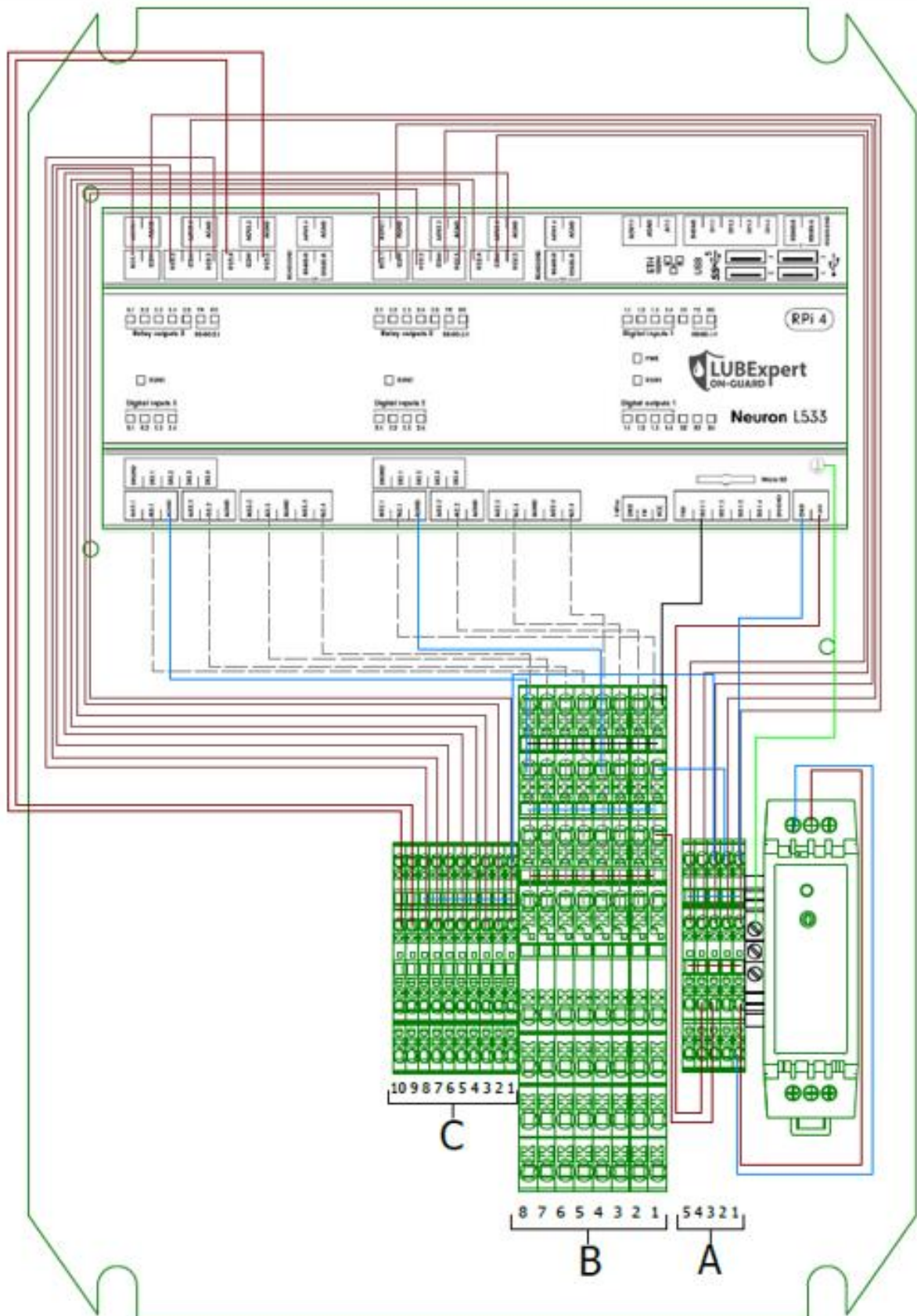
Kit composition (FS.SRL.001):

| Sub article code | Description | Qty | Remark |
|----------------------|--|-----|-------------------------|
| FU.SRL.ENC.002-01 | SRL - ON-GUARD COATED STEEL ENCLOSURE 500x400x155 | 1 | Prewired configuration |
| SI.PLC.UNIPI.001 | UNIPI NEURON L533 - REVOLUTION PI - 12 DI/4 DO - 10 RO - 9 AI/ 9 AO - 1 RS485 | 1 | mandatory |
| SIMEMCF032GB-03 | SDCS2/32GB KINGSTON 32GB μ SDHC CLASS 10/UHS-I (U1) 100MB/s READ MEMORY CARD (SKU: 4635534) | 1 | mandatory |
| FA.VIG.NTW.001-02 | RUT241 - INDUSTRIAL 4G/LTE (Cat 4), 3G, 2G ROUTER (TELTONIKA) | 1 | optional |
| FA.VIG.NTW.ACC.00-01 | INDUSTRIAL ROUTER RUT240/RUT241 - HARDWARE MOUNTING KIT | 1 | optional |
| SI.LBX.PRT.004 | PERMA STAR CONTROL 2.0 - DRIVE UNIT AUTOMATIC LUBRICATION (PERMA TEC 108985) | 8 | customizable |
| FU.SEN.RSC.101-03 | CONMONSense; RSC US STAT 4-20mA M8 4PM - THREADED SENSOR M6 - IP65 W/O CABLE (RED - S/N 573 YY XX) | 8 | mandatory, customizable |
| SIMSENSCP2MP-01-C | MOUNTING PAD CP2 - INOX303 HEX22x10mm - PLAN/FILE SIMSENSCP2MP-01--C) | 8 | customizable |
| FU.RSC.CABL.01.300-1 | SAC-4P-30,0-PUR/M 8FS SH (1521957) - SENSOR-/ACTOR CABLE M8 4PF <> FREE END 30,0m - STRAIGHT SHIELDE | 8 | customizable |
| FU.SRL.CABL.01.300-1 | SAC-4P-M 8FS/PUR/30.0 (1697771) - SENSOR-/ACTOR CABLE M8 4PF <> FREE END 30,0m - STRAIGHT | 8 | customizable |

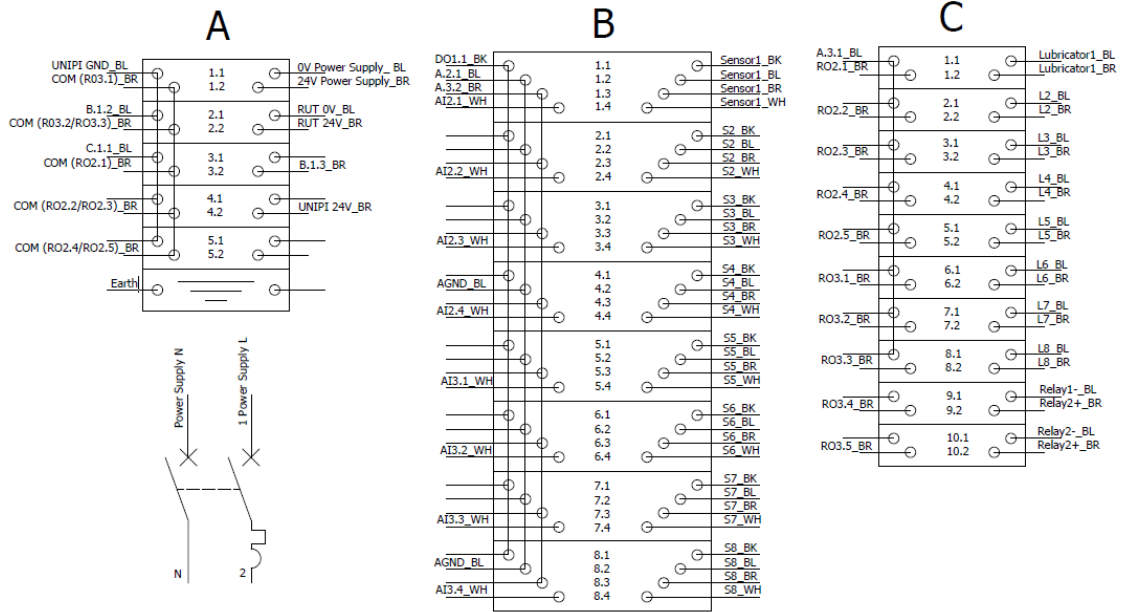
*Can be ordered separately for professionals who want to install the unit into an existing electrical cabinet.

Default internal wiring:

Overview



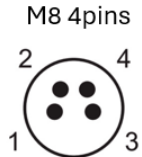
Terminal block



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] |
| 5 | B(5:4) : [DO.1.1, AGND, 24 V, AI3.1] | C(5:2) : [RO2.5, COM/24 V] |
| 6 | B(6:4) : [DO.1.1, AGND, 24 V, AI3.2] | C(6:2) : [RO3.1, COM/24 V] |
| 7 | B(7:4) : [DO.1.1, AGND, 24 V, AI3.3] | C(7:2) : [RO3.2, COM/24 V] |
| 8 | B(8:4) : [DO.1.1, AGND, 24 V, AI3.4] | C(8:2) : [RO3.3, COM/24 V] |
| Alarm | | C(9:2) : [RO3.4, ...] |
| Alarm | | C(10:2) : [RO3.5, ...] |

Inputs/outputs pinout

| | Electrical connection | Sensors (COMMONSENSE RSC.101) | Lubricators (PERMA STAR CONTROL) |
|---|-----------------------|----------------------------------|-------------------------------------|
|  <p>M8 4pins</p> | 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):

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


- Finalize wiring and power on the system.
- Connect an ethernet cable to the connection port of the PLC (ETH).
- On your client PC, set up a compatible static IP address to join the network according to the (default) static configuration.

Example :

| Type | Server/ON-GUARD | Client/PC |
|-----------------|-----------------------------|---------------|
| Static IP | 10.8.2.150 (default cfg) | 10.8.2.100 |
| Network mask | 255.255.255.0 (default cfg) | 255.255.255.0 |
| Default Gateway | 10.8.2.1 (default cfg) | 10.8.2.1 |

- Open a web browser, type the default IP (10.8.2.150) in the address bar to access the LUBExpert ON-GUARD home menu.



- At the top right hand corner, the default access is defined as Visitor. Click on icon  then sign in as **Username** (password : **Password**) to configure your unit.



The image shows a dark blue login window titled "User login". It contains two white input fields: "Username" and "Password". Below the fields are two buttons: "Log in" and "Close".

Note: SDT ON-GUARD software might be required to modify certain settings.

Note: Adjust your network settings according to your own network configuration.

SDT recommendations

- Refer to the user manual for detailed instructions and comprehensive guidance on the installation, configuration, and maintenance procedures.
- Consult competent professionals 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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| 4 | | | |
| 3 | | | |
| 2 | | | |
| 1 | CMA 2024/02/20 | Production version | 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.*