

**NEW**

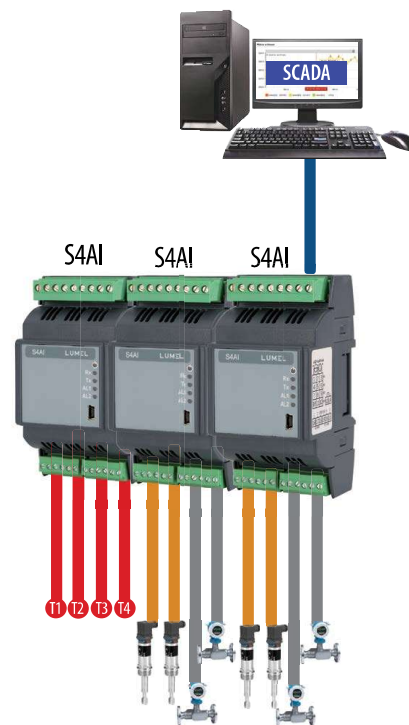
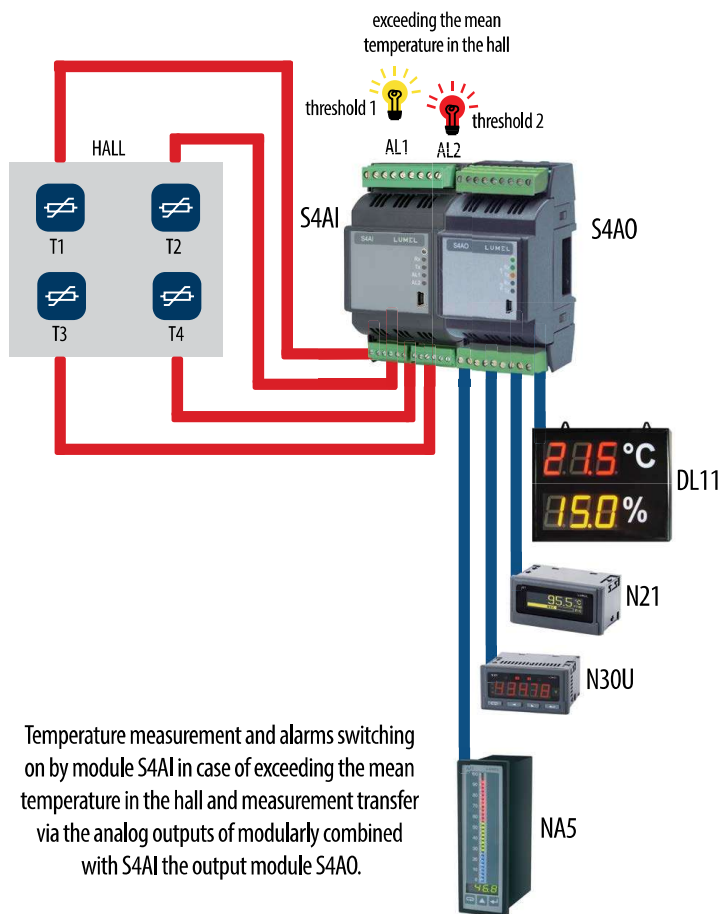


## S4AI - MODULE OF ANALOG INPUTS

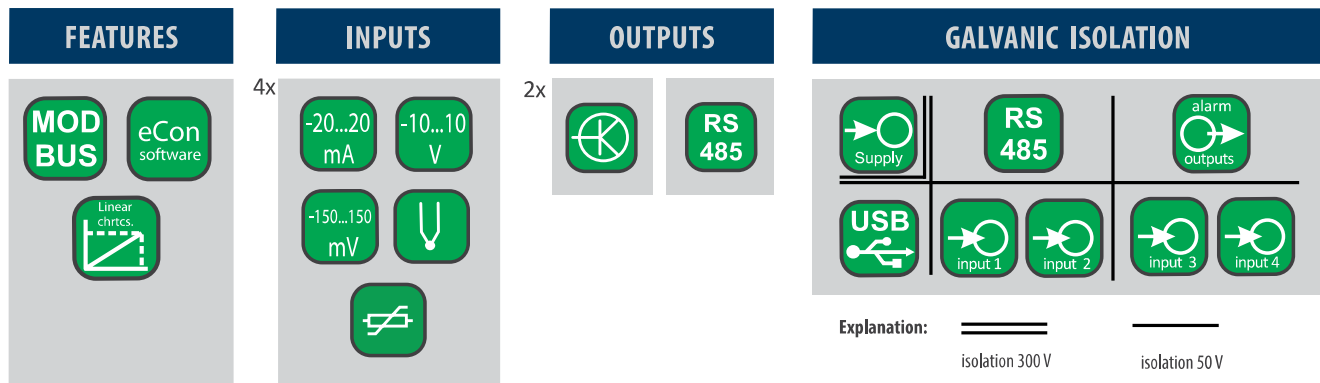
- Processing 4 analog signals (standard signals, resistance thermometers, thermocouples) to RS-485 Modbus.
- Programmable individual characteristics of the inputs.
- Operation in Modbus Slave mode.
- Possible connection via the internal RS-485.
- Two programmable alarm outputs.
- Mathematical functions: addition, subtraction, multiplication, division, average, minimum, maximum.
- Two virtual measurement channels to perform mathematical functions on the channels or between the measurement channels.
- Programmable operating time counters.
- To be mounted on TS35 rail in typical installation cabinets.
- Galvanic isolation between inputs divided into 2 groups of 2 inputs
- Possible configuration via USB (power supply of the module is not required).



### EXAMPLE OF APPLICATION



Measurement and processing of various analog signals from temperature sensors, pressure transducers and flowmeters into a digital signal RS-485 Modbus.



## TECHNICAL DATA

### INPUTS

Input type	Range	Internal resistance	Basic error	Sensor current	Maximum wire resistance
Voltage input	-12...-10...0...10...12 V	> 1 MΩ	0.1 % of range	-	-
Current input	-24...-20...0...20...24 mA	10 Ω ±1%	0.1 % of range	-	-
Pt100 sensor input	-200 °C...850 °C	-	0.1 % of range	300 μA ±2%	< 20 Ω
Pt500 sensor input	-200 °C...850 °C	-	0.1 % of range	300 μA ±2%	< 20 Ω
Pt1000 sensor input	-200 °C...850 °C	-	0.1 % of range	300 μA ±2%	< 20 Ω
Voltage input (shunt)	-180...-150...0...150...180 mV	> 50 kΩ	0.1 % of range	-	-
Thermocouple J input	-210 °C...1200 °C	-	0.1 % of range	-	-
Thermocouple K input	-250 °C...1372 °C	-	0.1 % of range	-	-
Thermocouple S input	-50 °C...1768 °C	-	0.1 % of range	-	-

### OUTPUTS

Output type	Remarks
Alarm output	logic, maximat output current: 20 mA, off state: 0 V, on state: 5 V acc. to TTL levels acc. to EIA JESD12-6

### DIGITAL INTERFACE

Interface type	Transmission protocol	Remarks
RS-485	Modbus RTU 8N2, 8E1, 8O1, 8N1 Address 1..247	baud rate: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 kbit/s,
USB (for configuration)	Modbus RTU 8N2, 1.1 / 2.0	baud rate: 115.2 kbps

### EXTERNAL FEATURES

Overall dimensions	53 x 110 x 60,5 mm
Weight	0.2 kg
Protection grade	from frontal side: IP50 from terminal side: IP00

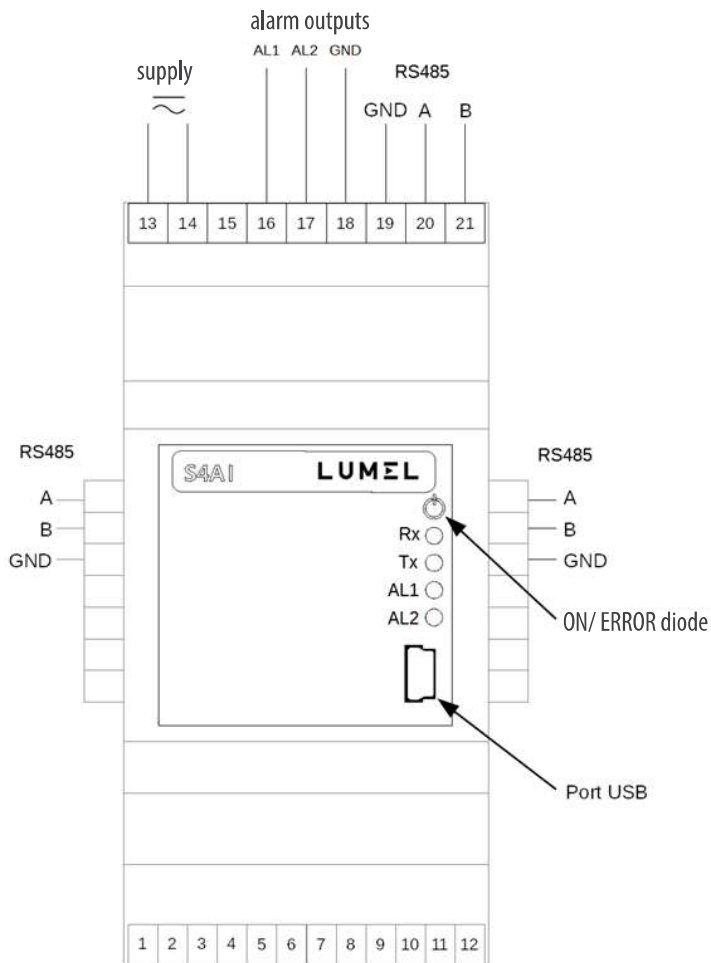
### RATED OPERATING CONDITIONS

Supply voltage	85...253 V a.c. 40..400 Hz; 90...300 V d.c. 20...40 V a.c. 40...400 Hz, 20...60 V d.c.	power consumption ≤ 3 VA
Preheating time	30 min.	
Ambient temperature	-10...23...55 °C	
Humidity	< 95%	inadmissible condensation
Operating position	vertical	
External magnetic field	0...40...400 A/m	

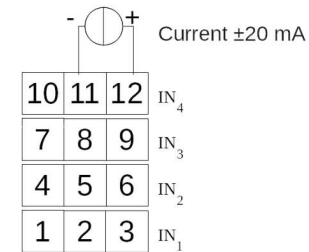
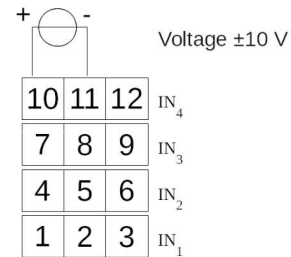
## SAFETY AND COMPABILITY REQUIREMENTS

<b>Electromagnetic compatibility</b>	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
<b>Isolation between circuits</b>	basic	acc. to EN 61010-1
<b>Polution level</b>	2	acc. to EN 61010-1
<b>Installation category</b>	III	acc. to EN 61010-1
<b>Maximal phase-to-earth voltage</b>	<ul style="list-style-type: none"> <li>for supplying circuits 300 V</li> <li>for other circuits 50 V</li> </ul>	acc. to EN 61010-1
<b>Altitude a.s.l.</b>	< 2000 m	acc. to EN 61010-1

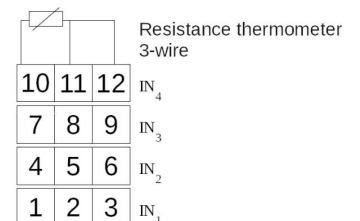
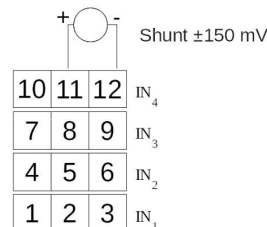
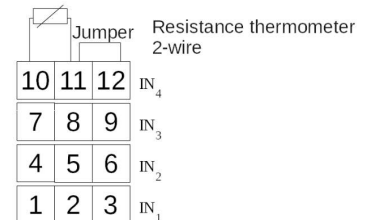
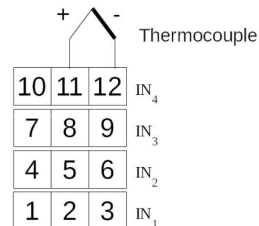
## CONNECTION DIAGRAMS



Electrical connection of S4AI module



version with inputs  $\pm 10$  V,  $\pm 20$  mA



version with inputs Pt100, Pt500, Pt1000, thermocouples JKS,  $\pm 150$  mV

## ORDERING CODE

Module of analog outputs S4AI -	X	X	XX	X	X
<b>Inputs:</b>					
4 programmable analog inputs: $\pm 10\text{ V} - \pm 20\text{ mA}$	1				
4 programmable analog inputs: Pt100, Pt500, Pt1000, J, K, S, $\pm 150\text{ mV}$	2				
acc.to customer's request*	X				
<b>Supply voltage:</b>					
85...253 V a.c. , 90...300 V d.c.	1				
20...40 V a.c. , 20...60 V d.c.	2				
<b>Version:</b>					
standard			00		
custom-made*			XX		
<b>Language:</b>					
Polish				P	
English				E	
other*				X	
<b>Acceptance tests:</b>					
without additional quality requirements					0
with an extra quality inspection certificate					1
acc.to customer's request					X

### Order example:

The code **S4AI-1100E0** means:

- S4AI** – module S4AI,
- 1** – 4 analog inputs:  $\pm 10\text{ V} - \pm 20\text{ mA}$ ,
- 1** – 85...253 V a.c. / d.c.
- 00** – standard version,
- E** – user's manual in English,
- 0** – without additional quality requirements.

\* only after agreeing with the manufacturer

## SEE ALSO:



**S4AI** – modul of 4 analog outputs



**N30U** – programmable digital meter of temp., resistance and standard signals



**N25** – configurable digital indicator



**N21** – temperature and d.c. standard signals universal digital meter with OLED



**N43** – Rail mounted 3-phase power network meter N43



free **eCON** software

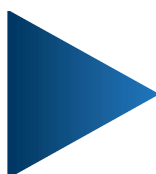
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S4AI-19\_en



**LUMEL**  
EVERYTHING COUNTS

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