LUMEL
EVERYTHING COUNTS

NEW

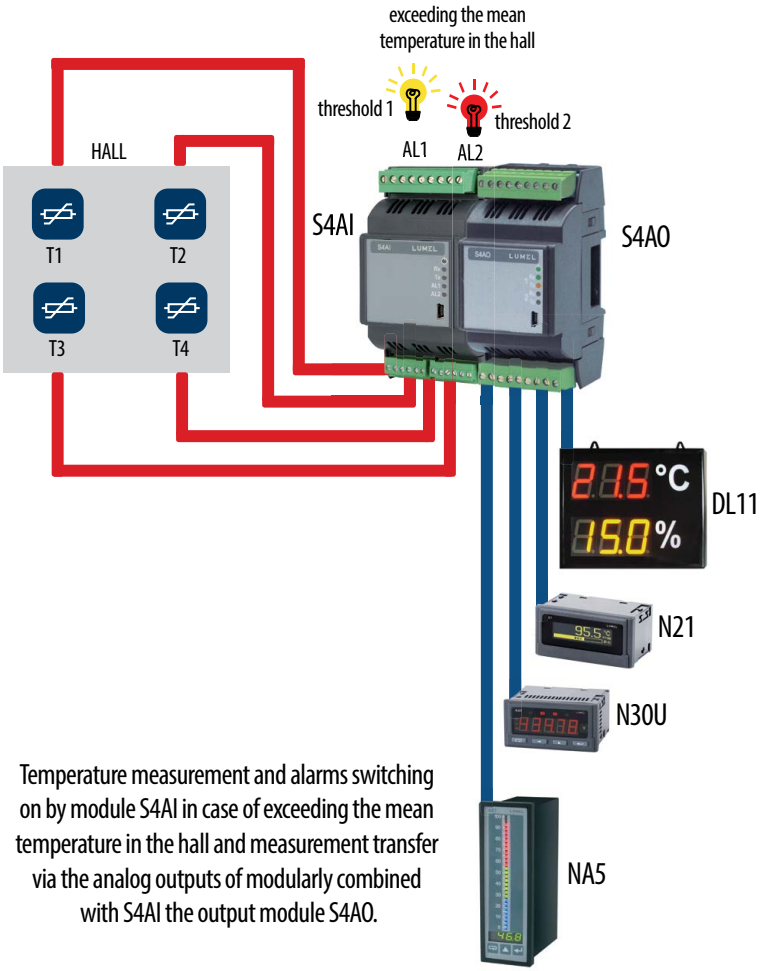
S4AI
- MODULE OF ANALOG INPUTS

- 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
- Possibile configuration via USB (power supply of the module is not required).

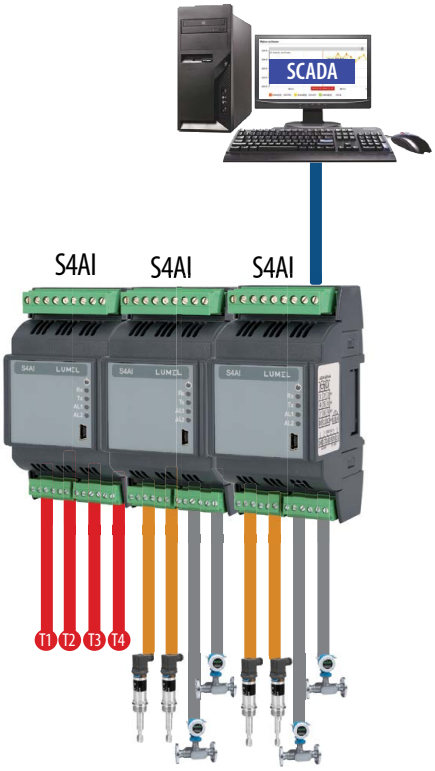
Electrical Safety CAT III

CE

EXAMPLE OF APPLICATION



Temperature measurement and alarms switching on by module S4AI in case of exceeding the mean temperature in the hall and measurement transfer via the analog outputs of modularly combined with S4AI the output module S4AO.



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

S4AI - MODULE OF ANALOG INPUTS

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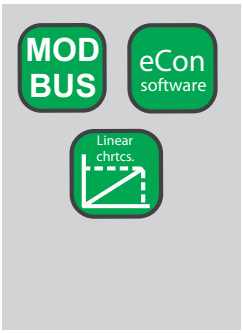
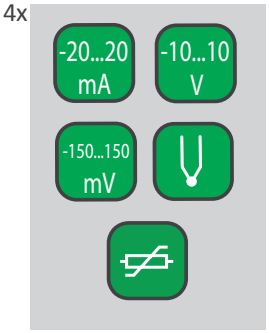
FEATURES

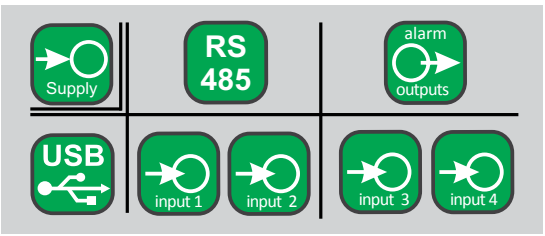


INPUTS



OUTPUTS

GALVANIC ISOLATION



Explanation: isolation 300 V; isolation 50 V

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

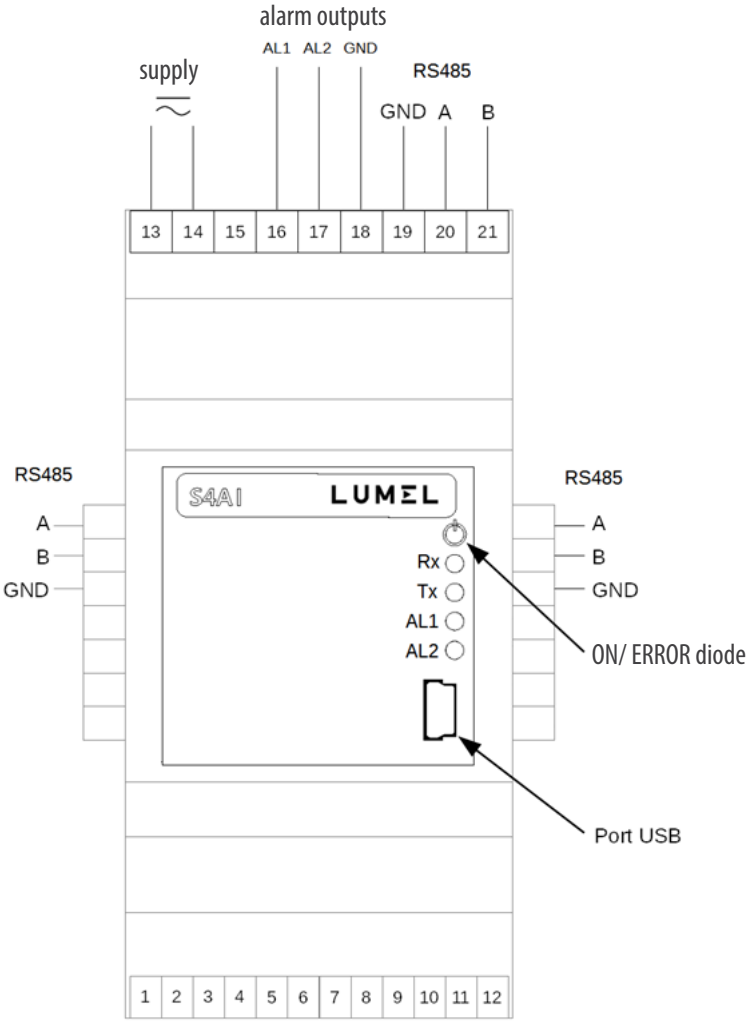
Supply voltage	85...253 V a.c. 40..400 Hz; 90...300 V d.c. 20...40 V a.c. 40...400 Hz, 20...60 V d.c.	power consumption ≤ 3 VA
Preheating time	30 min.	
Ambient temperature	-10...23...55°C	
Humidity	< 95%	inadmissible condensation
Operating position	vertical	
External magnetic field	0..40..400 A/m	

S4AI - MODULE OF ANALOG INPUTS

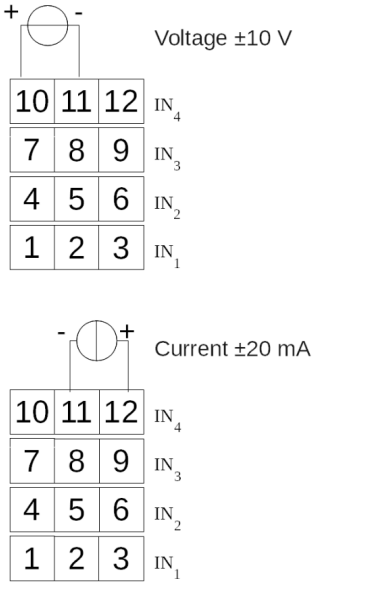
SAFETY AND COMPABILITY REQUIREMENTS

Electromagnetic compatibility	noise immunity	acc. to EN 61000-6-2
	noise emissions	acc. to EN 61000-6-4
Isolation between circuits	basic	acc. to EN 61010-1
Polution level	2	acc. to EN 61010-1
Installation category	III	acc. to EN 61010-1
Maximal phase-to-earth voltage	• for supplying circuits 300 V • for other circuits 50 V	acc. to EN 61010-1
Altitude a.s.l.	< 2000 m	acc. to EN 61010-1

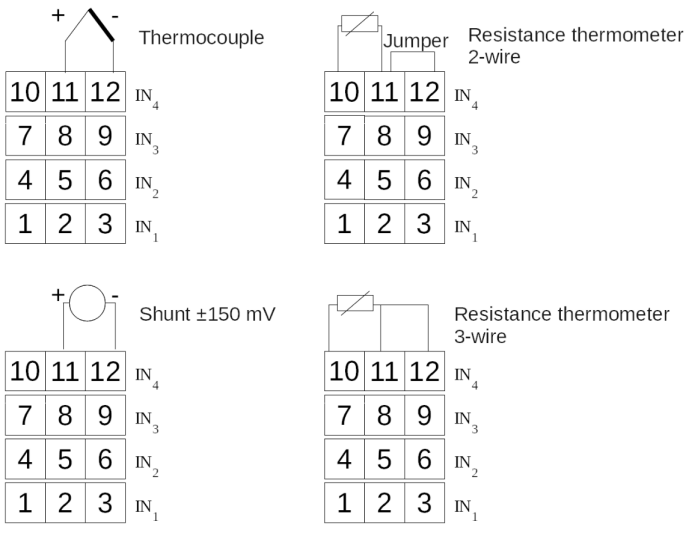
CONNECTION DIAGRAMS



Electrical connection of S4AI module



version with inputs ±10 V, ±20 mA



version witn inputs Pt100, Pt500, Pt1000, thermocouples JKS, ±150 mV

S4AI - MODULE OF ANALOG INPUTS

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ORDERING CODE

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

* only after agreeing with the manufacturer

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

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

SEE ALSO:

S4AO - 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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LUMEL S.A.
ul. Sulechowska 1, 65-022 Zielona Góra, POLAND
tel.: +48 68 45 75 100, fax +48 68 45 75 508
www.lumel.com.pl,
e-mail: lumel@lumel.com.pl

Export department:
tel.: (+48 68) 45 75 139, 45 75 233, 45 75 321, 45 75 386
fax.: (+48 68) 32 54 091
e-mail: export@lumel.com.pl