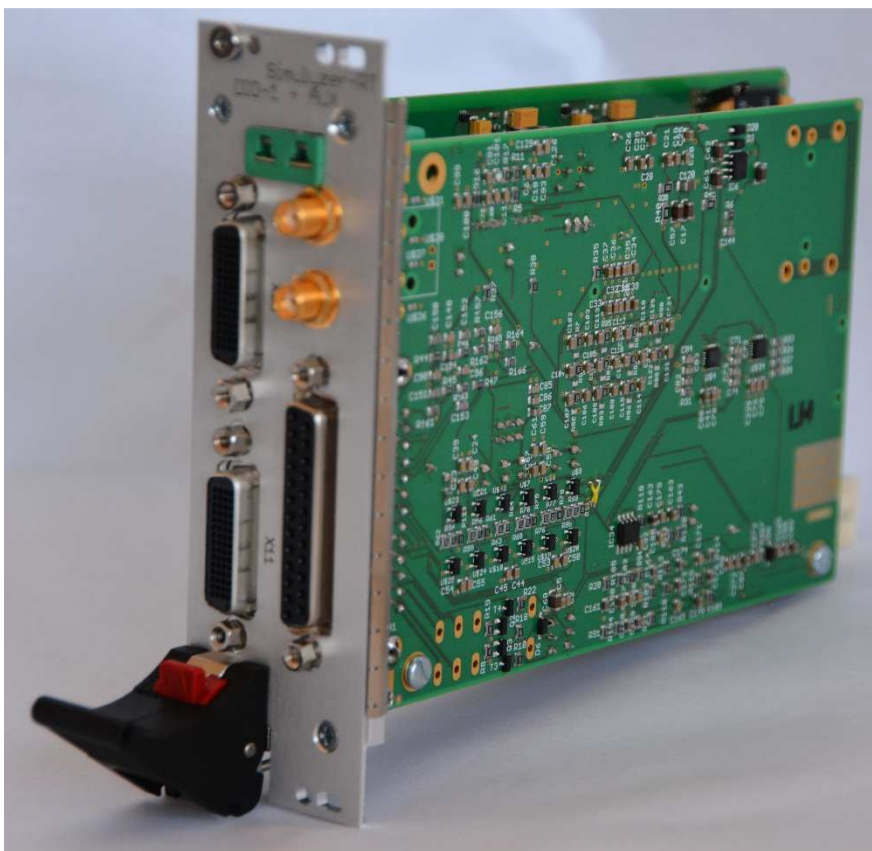# Simulyzer-RT
Aux-Addon-Card

RT Aux-Addon-card in combination with RT DIO-1 card

Hardware version	1.1
Dokumentation version:	1.0
Created:	Dez 2015
Order no.:	1.1020 + DIO-1 card 1.1002

Safety instructions

To avoid damages to persons and devices the following safety instructions have to be noticed!

- Only qualified personnel are allowed to handle this device!

- Before any handling within the device the current supply has to be switched off!

- During operation the device have to be positioned, that enough air condition is supplied and no small parts can get into the ventilation slots.

- In case of any trouble the system has to be switched de-energized!

- The declared environmental conditions and max. voltage ranges have to be observed!

- To warranty the device remove all dust and dirt in periodically intervals.

- Make sure that the ventilation slots are unobstructed!

Intended Use:

The Simulyzer-RT Aux-Addon-Card is engineered as an additional card to a RT-DIO-1 card. It enables additional in- and outputs, the injection of two reference signals, two relay contacts and the connection of a thermal element.

- The device is only permitted to use for the intended use.
  Any other use results the deletion of the guarantee!

For questions and repair cases contact SesKion GmbH
Tel.: +49 (0)711/990 58 14
Fax: +49 (0)711/990 58 27
Email: info@seskion.de
Internet: www.seskion.de

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1. Technical data

	Symbol	Typ	Min	Max	Note
Supply voltage	U_{Supp}	12 V	11.4 V	12.6 V	
Current consumption	I_{Supp}				Without sensors
2 analog inputs 0V to +5V via SMA connector	100k sample/s (10µs sample distance). Input resistance 100kOhm, optional 50Ohm				
4 analog inputs 0V to +10V	100k sample/s (10µs sample distance). Input resistance 100kOhm				
Sampling rate all other measurements	10k sample/s (100µs sample distance)				
4 analog outputs	0V...5V				
4 digital outputs	3.3V or 5V TTL level				
4 digital inputs	3.3V (5V tolerant) TTL level				
2 Relay make contact	Resilient with 24V / 2A				
Measurement of a thermal element Typ K	-58° F … 302° F (-50°C to …150°C)				
Operating temperature	32° F … 104°F (0°C … 40°C)				
Rel. Humidity	Max. 85% not condensed				
Weight	In combination with RT DIO-1 card				
Dimension	As Additonal-plug on card to an euroformat basic card RT-DIO-1 4 U + additional 4 U Aux-Addon				
Standard specifications	EN 61326-1, EN 61000-6-2, EN 61000-6-3				

2. Measurement accuracy

2.1. Time base

The time base is the time base of the combined periphery card and has typically the following dates:

Test conditions: Environmental temperature 68° to 79°F

Num	Evaluation	Symbol	Typ	Max	Unit	Note
1	Accuracy time base	$\Delta f/f$	±30	±50	ppm	-
2	Aging time base	$\Delta f/f_A$	±5		ppm/year	-
3	Temperature drift of the time base	$\Delta f/f_T$	±0.3	±0.7	ppm/K	-

2.2. Measurement of the 4x analog inputs (0..10V, 100kOhm, 100k samples/s)

Test conditions: Environmental temperature 68° to 79°F

Num	Evaluation	Symbol	Typ	Max	Unit	Note
4	Accuracy of the measured voltage	U_{mea}	±0.1	±0.15	% of scfin 5 V	
5	Aging of the measured voltage	U_{A-mea}		±0.05	%/year	
6	Resolution of the measured voltage		16		Bit	0..65535
			0,076293945		mV/LSB	

2.3. Generation of the analog output voltage

Test conditions: Environmental temperature 68° to 79°F

Num	Evaluation	Symbol	Typ	Max	Unit	Note
7	Accuracy of the generated voltage	U_{mea}	±0.1	±0.15	% of scfin 5 V	
8	Aging of the generated voltage	U_{A-mea}		±0.05	%/year	
9	Resolution of the generated voltage		16		Bit	0..65535
			0,076293945		mV/LSB	

2.4. Measurement of the thermal element Typ K (-58°F ... +302°F, 10 samples/s)

Test conditions: Environmental temperature 68° to 79°F

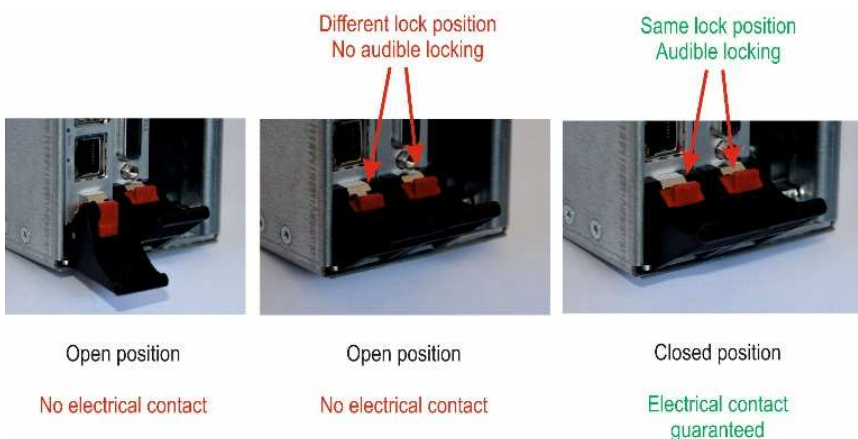| Num	Evaluation	Symbol	Typ	Max	Unit	Note
10	Accuracy of the measured temperature	U_{mea}	±1.0	±2.0	% of scfin 200°C	
11	Aging of the measured temperature	U_{A-mea}		±0.05	%/year	
12	Resolution of the measured temperature		12		Bit	0..4096
			0,048828125		°C/LSB	

3. Connections:

- **Connection periphery card:**
  60 pin connector with 12V supply voltage, 3.3V supply and 19 logic pins

- **Connections front:**

Connectors of the combined periphery card
Simulyzer RT DIO-1

Special female connector for thermal element Typ K

X6 SMA female connector SMA BU E
X5 SMA female connector SMA BU E

X2 D-Sub 25 female connector with digital and analog in-/outputs and Relay contacts
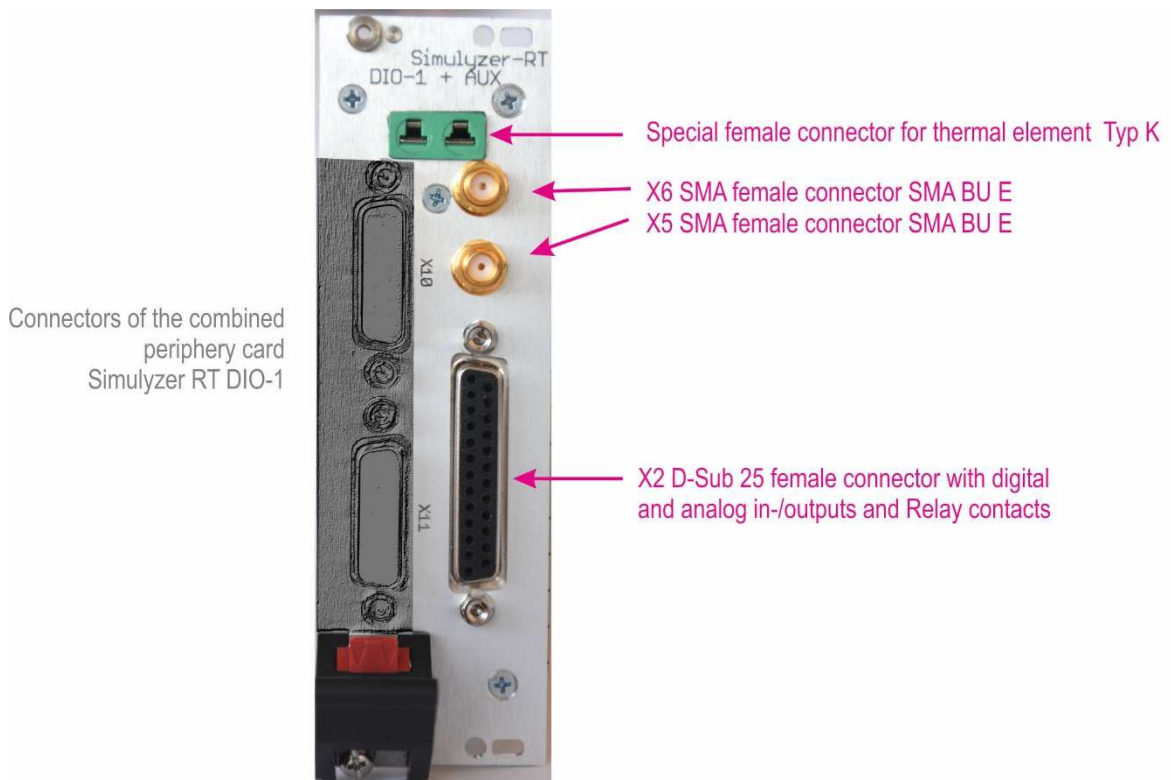
4. Handling the ejection lever of the chassis

Pay attention that the ejection lever of the plug-in card is arrested correctly. Only the correct position guarantees a justly connection of the bus system and the power supply!

Different lock position
No audible locking

Same lock position
Audible locking

Open position

Open position

Closed position

No electrical contact

No electrical contact

Electrical contact guaranteed

SesKion
Softwareentwicklung und
System Konzeption GmbH

5. Connection diagram

X2 – 25 pin. Sub-D female connector   :   X5/X6-SMA-female connector:

X2-1	Ana_1_in
X2-2	Ana_3_in
X2-3	GND common
X2-4	Ana_2_out
X2-5	Ana_4_out
X2-6	Dig_1_in
X2-7	Dig_3_in
X2-8	n.c.
X2-9	Dig_2_out
X2-10	Dig_4_out
X2-11	GND common
X2-12	Kont_1_in
X2-13	Kont_2_in
X2-14	Ana_2_in
X2-15	Ana_4_in
X2-16	Ana_1_out
X2-17	Ana_3_out
X2-18	GND common
X2-19	Dig_2_in
X2-20	Dig_4_in
X2-21	Dig_1_out
X2-22	Dig_3_out
X2-23	n.c.
X2-24	Kont_1_out
X2-25	Kont_2_out
X2-G	Shield