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1 Control boxes type SCT

1.1 Control box SCT2 iSMPS 580 230V (124.00254)

	Number of motor channels	2
	Abmessung (L x B x H)	309 x 120 x 55 mm
	Weight	1.12 kg
	Versorgungsspannung	207 – 254.4 V; 50 Hz; 4.5 A
	Standby power primarily	< 0.6 W
	Power	580 VA; 20 A @ 29 V DC
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.2 Control box SCT4 iSMPS 580 230V (124.00250)

	Number of motor channels	4
	Dimension (L x W x H)	309 x 120 x 55 mm
	Weight	1.24 kg
	Supply voltage	207 – 254.4 V; 50 Hz; 4.5 A
	Standby power primarily	< 0.6 W
	Power	580 VA; 20 A @ 29 V DC
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.3 Control box SCT4 iSMPS 580 110V (124.00258)

	Number of motor channels	4
	Dimension (L x W x H)	309 x 120 x 55 mm
	Weight	1.24 kg
	Supply voltage	103.5 – 127.2 V; 60 Hz; 7.4 A
	Standby power primarily	< 0.6 W
	Power	580 VA; 20 A @ 29 V DC
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.4 Control box SCT4 iSMPS 24V (124.00265) - for battery solutions

	Number of motor channels	4
	Dimension (L x W x H)	309 x 120 x 55 mm
	Weight	0.75 kg
	Supply voltage	16.8 – 29 V
	Standby power primarily	< 0.6 W
	Power	240 VA
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.5 Control box SCT2 MDT 100-240V (124.00286)

	Number of motor channels	2
	Dimension (L x W x H)	327 x 98 x 44 mm
	Weight	0.89 kg
	Supply voltage	100-240 V; 50-60 Hz; 5 A
	Standby power primarily	< 0.6 W
	Power	380 VA; 20 A @ 29 V DC
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.6 Control box SCT4 MDT 100-240V (124.00287)

	Number of motor channels	4
	Dimension (L x W x H)	327 x 98 x 44 mm
	Weight	0.94 kg
	Supply voltage	100-240 V; 50-60 Hz; 5 A
	Standby power primarily	< 0.6 W
	Power	380 VA; 20 A @ 29 V DC
	Protection class (DIN EN 60529)	IP 20
	Performance Level (DIN EN 13849-1)	PL b
	Firmware	1.10

1.7 Overview of features and functions

Characteristics	Power	# Channels	Hand switch (Interface)	Sync	Squeeze line	IP	PL
SCT2 iSMPS 230V	580 W	2	1x RJ-12 (RS-232)	1x RJ-45	2x RJ-10	IP 20	PL b
SCT4 iSMPS 230V	580 W	4	1x RJ-12 (RS-232)	1x RJ-45	2x RJ-10	IP 20	PL b
SCT4 iSMPS 110V	580 W	4	1x RJ-12 (RS-232)	1x RJ-45	2x RJ-10	IP 20	PL b
SCT4 iSMPS 24V	240 W	4	1x RJ-12 (RS-232)	1x RJ-45	2x RJ-10	IP 20	PL b
SCT2 MDT	380 W	2	1x RJ-12 (RS-232)	Nein	Nein	IP 20	PL b
SCT4 MDT	380 W	4	1x RJ-12 (RS-232)	Nein	Nein	IP 20	PL b

Characteristics	Motor auto-detect	Tilt sensor	Duty cycle ratio	Speed	Memory positions	Double-click	Overcurrent detection
SCT2 iSMPS 230V	Ja	Ja	1:1	Load-dependent	12	Deaktiviert	Ja
SCT4 iSMPS 230V	Ja	Ja	1:1	Load-dependent	12	Deaktiviert	Ja
SCT4 iSMPS 110V	Ja	Ja	1:1	Load-dependent	12	Deaktiviert	Ja
SCT4 iSMPS 24V	Ja	Ja	Max. 2 min. on Min. 18 min. off	Load-dependent	12	Deaktiviert	Ja
SCT2 MDT	Ja	Ja	Max. 2 min. on Min. 18 min. off	Load-dependent	12	Deaktiviert	Ja
SCT4 MDT	Ja	Ja	Max. 2 min. on Min. 18 min. off	Load-dependent	12	Deaktiviert	Ja

2 Extended control (PLC & RS-232 interface)

The control box type SCT can be operated with a hand switch and following two other ways:

- Control via PLC (Programmable Logic Controller)
- Communication via RS-232 interface (two-way communication)

The control cable 124.00279 can be used for both variants.

This cable has an RJ-12 connector on the control box side (J1). On the other side (J2) the individual wires are color-coded and assigned to the corresponding pins.



Pin	Color	Function
P1	Yellow	UP
P2	Red	RX
P3	Green	GND
P4	Blue	5V
P5	Pink	DOWN
P6	Grey	TX

2.1 Control via PLC (Programmable Logic Controller)

For a PLC, the color-coded wires of the control cable are connected to the corresponding inputs and outputs of the PLC.

By switching the defined pins, the PLC can extend or retract the lifting system. However, direct positioning to a specific height is not possible with this type of control – unless external sensors are attached.

Example of practical application:

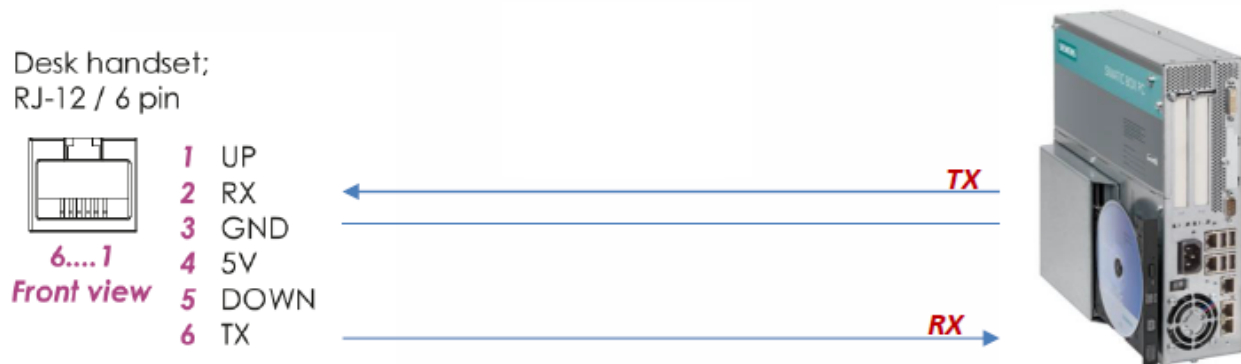
- 1) The PLC sends the signal to the control box: «Drive» (**connect two pins**)
- 2) While driving up a sensor is reached. This sensor sends a signal to the PLC.
- 3) The PLC then sends the signal to the control box: «Stop» (**disconnect two pins**)

Pink (DOWN)	Yellow (UP)	Green (GND)	
0	0	0	No movement
0	1	1	Drives up
1	0	1	Drives down
1	1	1	Reset

2.2 Communication via RS-232 interface (two-way communication)

The control box type SCT offers a two-way communication. This means the control box can not only process inputs but also send outputs back to a higher-level system.

Communication takes place via the TX and RX pins of the control cable.



The evaluation and processing of all information data (command and response structure) can be found in the Ergoswiss communication protocol.

Possible inputs:

- Drive UP
- Drive DOWN
- Drive to memory position xy
- Reset
- Container- and Shelf-Stop

Possible outputs:

- Current table height
- Error-Code
- Power consumption per motor channel
- Currently stored memory position

3 Load-dependent duty cycle «I²t»

Control boxes type SCT with firmware older than FW 1.10 have a fixed duty cycle (ED) of 2/18 or 2/40 (ON/OFF). The maximum continuous operating time is 2 minutes. Then a pause of up to 40 minutes is required before the system can be operated again.

Control boxes type SCT with firmware FW 1.10 have a load-dependent duty cycle monitoring. This means that the operating time can be up to 6 minutes, if the system is not at full load.

Guideline values according to the system combination chart :

SX Systems	SLX Systems	SNT Systems
Load 0–60% → ON time 6 min.	Load 0–70% → ON time 6 min.	Load 0–70% → ON time 6 min.
Load >60% → ON time 2.5-5 min.	Load >70% → ON time 2-5 min.	Load >70% → ON time 2-4 min.

3.1.1 Functional principle

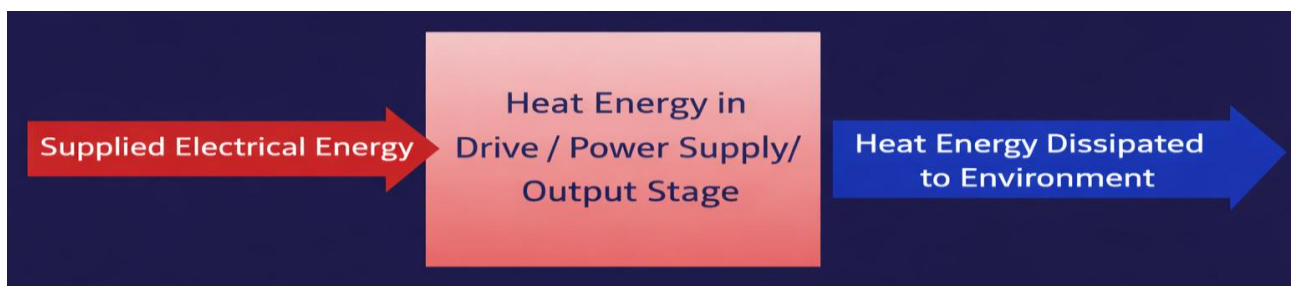
A load-dependent duty cycle limitation is a thermal protection within the control box, that limits the permissible operating time of a lifting column depending on the actual load.

The objective is to enable the lifting system to operate as long as possible without causing failure of sliding bearings, spindle nut, motor or control box electronics due to overheating.

The control box software contains a parameterizable mathematical model of the power path (power supply, output stage and drive).

This model estimates the current temperature based on the current profile and limits the operating time accordingly.

[I² · t = Current squared and multiplied by time]



NOTE

Only valid for mains operation – battery solutions are excluded!

3.1.2 Operating time diagrams (I²t)

The following diagrams show the operating time depending on the load.
The values for 1-leg and 4-leg applications were meticulously measured.
The values for 2-leg or 3-leg applications were calculated.

