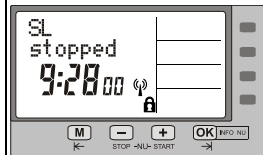


PLEASE NOTE!!!



**(SC 58.17 pro / SC 98.47 pro / SC 53.17 pro / SC 93.47 pro)**  
**Please note the following for masterclock with time switch functionality:**  
 This manual describes only masterclock features. Time switch relevant description can be found in the standard time switch manual!  
 Only the connection diagram, initial operations and the safety instructions of this manual is valid.

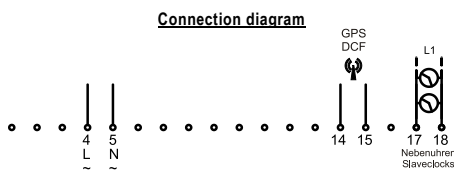
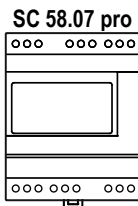
SAFETY INSTRUCTIONS

- !!ATTENTION!! DANGER OF LIFE / RISK OF FIRE AND ELECTRIC SHOCK!!!**  
 => Installation and assembly of electrical equipment must be carried out only by a skilled person!!!  
 => Disconnect device from power supply for wiring and installation purposes!!!  
 => Defective devices have to be put out of service immediately!!!
- Connect the supply voltage/frequency as stated on the product!
- Warranty void if housing opened by unauthorised person!
- The electronic circuit is protected against a wide range of external influences. Incorrect operating may occur if external influences exceed certain limits!
- Installation and assembly of electrical equipment must be in accordance with local building and electrical codes!
- The disposal of the device (and batteries) must be in accordance with the valid environmental and national law!

SC 58.07 pro (DIN rail mounting – master clock)

Technical data slave-clock-line (SL)

Initial operation



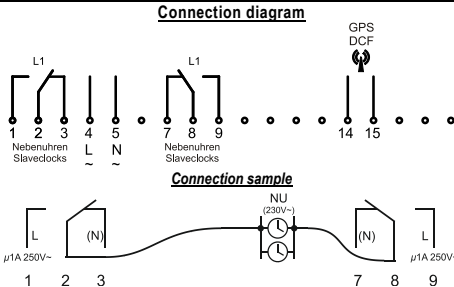
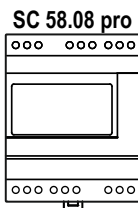
Number of lines: 1  
 Output voltage: 24VDC  
 Output current: 35mA  
 Conn. terminals: 17 / 18  
 Max. number clocks: approx. 5 slave clocks  
 Output signal: Pole changing pulse  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = 10/min  
 Pulse length: 2 sec.  
**(Pulse sequence/length adjustable)**

- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product!
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect slave-clock-line to terminal no. 17 and 18 of the master clock.

SC 58.08 pro (DIN rail mounting – master clock)

Technical data slave-clock-line (SL)

Initial operation



Number of lines: 1  
 Output voltage: Max. 250V~ (potential-free)  
 Output current: 1A  
 Conn. terminals: 2 / 8  
 Max. number clocks: Depends on the slave clocks  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = ca. 6/min  
 Pulse length: 8 sec.  
**(Pulse sequence/length adjustable)**

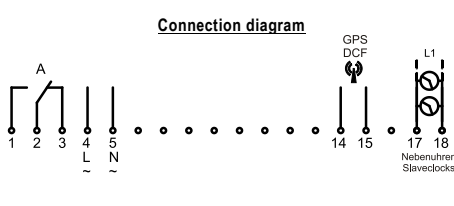
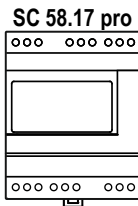
- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product!
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect slave-clock-line to terminal no. 2 and 8 of the master clock.
- Power supply slave-clock-line (SL) (See connection diagram on the left)**
- Connect power supply for clock motor(s) to terminals 1 / 9 and 3 / 7

**PLEASE NOTE: The two relays are energized alternately every minute.**

SC 58.17 pro (DIN rail mounting – master clock with time switch functionality / weekly time switch)

Technical data slave-clock-line (SL)

Initial operation



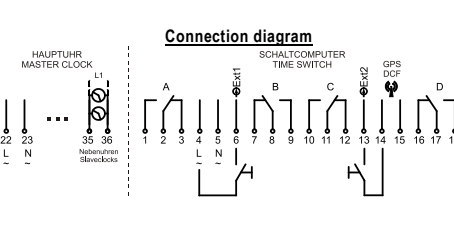
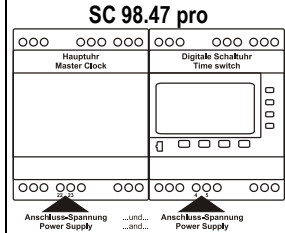
Number of lines: 1  
 Output voltage: 24VDC  
 Output current: 150mA  
 Conn. terminals: 17 / 18  
 Max. number clocks: approx. 20 slave clocks  
 Output signal: Pole changing pulse  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = 10/min  
 Pulse length: 2 sec.  
**(Pulse sequence/length adjustable)**

- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product!
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect slave-clock-line to terminal no. 17 and 18 of the master clock.

SC 98.47 pro (DIN rail mounting – master clock with time switch functionality / yearly time switch)

Technical data slave-clock-line (SL)

Initial operation



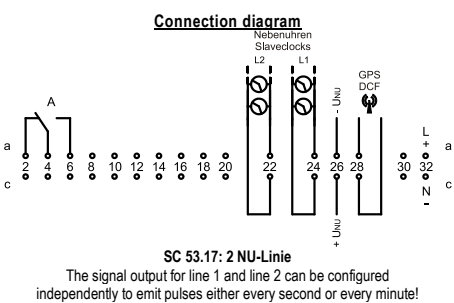
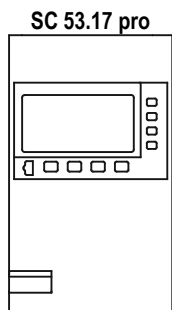
Number of lines: 1  
 Output voltage: 24VDC  
 Output current: 300mA  
 Conn. terminals: 35 / 36  
 Max. number clocks: approx. 40 slave clocks  
 Output signal: Pole changing pulse  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = 10/min  
 Pulse length: 2 sec.  
**(Pulse sequence/length adjustable)**

- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product! (Master clock = terminals 22/23 / Time switch = terminals 4/5).
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect the slave-clock-line (SL) to the master clock on terminals 35 and 36

SC 53.17 pro (19"-housing – master clock with time switch functionality / weekly time switch)

Technical data slave-clock-line (SL)

Initial operation



Number of lines: 2  
 Input UsL: 24VDC (12VDC/48VDC/60VDC) (Monitoring UsL - switchable)  
 Output current: up to 1500mA for each line (Depends on the power supply)  
 Conn. terminals: See conn. diagram on the left  
 Max. number clocks: approx. 200 slave clocks (each line)  
 Output signal: Pole changing pulse  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = 10/min  
 Pulse length: 2 sec.  
**(Pulse sequence/length adjustable)**  
 Module: NT 73 (Power adapter slave line)  
*Not included in delivery!*

- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product! (Terminals 32a and 32c).
- Connection power supply the slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Depending on the specifications of the slave clocks, connect 12VDC; 24VDC; 48VDC; or 60VDC to terminals 26a and 26c.
- Check polarity.
- For voltages of slave clocks which differ from 24VDC, the dip switches on the PCB have to be configured as stated within the table on the left.
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect slave-clock-line to:  
 Line 1 [L1] => terminals 24a und 24c  
 Line 2 [L2] => terminals 22a und 22c

**NOTE! Power supply from a third party supplier:**  
 The usage of a switched-mode power supply to drive the slave clock line might disturb the reception of the FU 20.00 pro radio receiver. If the radio receiver has no reception (the green LED on the bottom of the radio receiver flashes rapidly or not at all) please connect GND of your switched-mode power supply via an Y-capacitor with protective earth.

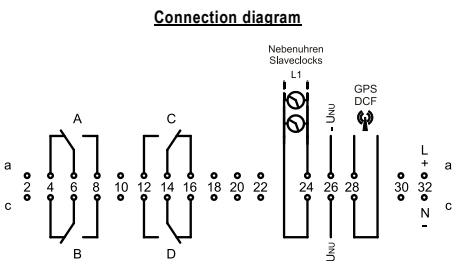
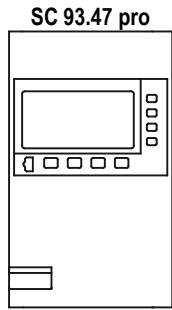
**Table dip switches**

▲ (Power supply monitoring of the slave-clock-line)					
SL	S1	S2	SL	S1	S2
▲ 12VDC	ON	ON	▲ 48VDC	OFF	ON
▲ 24VDC	ON	OFF	▲ 60VDC	OFF	OFF

SC 93.47 pro (19"-housing – master clock with time switch functionality / yearly time switch)

Technical data slave-clock-line (SL)

Initial operation






Number of lines: 1  
 Input UsL: 24VDC (12VDC/48VDC/60VDC) (Monitoring UsL - switchable)  
 Output current: up to 1500mA (Depends on the power supply)  
 Conn. terminals: See conn. diagram on the left  
 Max. number clocks: approx. 200 slave clocks  
 Output signal: Pole changing pulse  
 Pulse sequence: Normal operation = 1/min  
 During adjustment = 10/min  
 Pulse length: 2 sec.  
**(Pulse sequence/length adjustable)**  
 Module: NT 73 (Power adapter slave line)  
*Not included in delivery!*

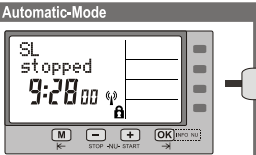
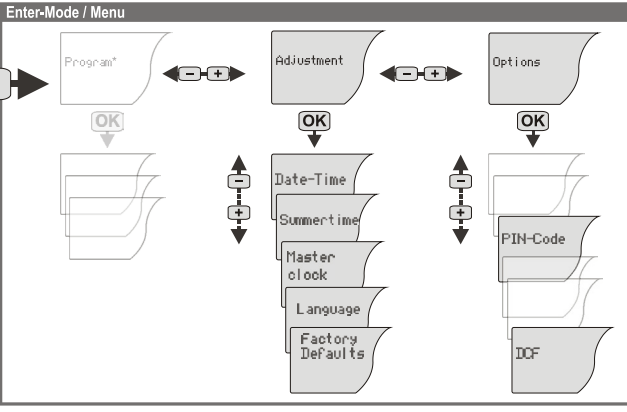


- The time switch is delivered in power back up mode (battery mode). The display shows the power plug symbol [flashing ].
- Press **OK**-button for 1 second. The display switches to automatic-mode. (Displaying the time and the current status of the slave-clock-line (SL)).
- The master clock is already programmed with the current date and time and European daylight savings time is activated. The slave-clock-line is preset as follows: Minute-line activated / start time 12:00 / Slave-clock-line (SL) is stopped.
- Power supply the master clock (See connection diagram on the left)**
- Connect the supply voltage/frequency as stated on the product! (Terminals 32a und 32c)
- Connection power supply slave clockline => master clock (See connection diagram on the left)**
- Depending on the specifications of the slave clocks, connect 12VDC; 24VDC; 48VDC; or 60VDC to terminals 26a and 26c.
- Check polarity.
- For voltages of slave clocks which differ from 24VDC, the dip switches on the PCB have to be configured as stated within the table on the left.
- Connection slave-clock-line (SL) => master clock (See connection diagram on the left)**
- Connect slave-clock-line to terminal no. 24a and 24c of the master clock.

**NOTE! Power supply from a third party supplier:**  
 The usage of a switched-mode power supply to drive the slave clock line might disturb the reception of the FU 20.00 pro radio receiver. If the radio receiver has no reception (the green LED on the bottom of the radio receiver flashes rapidly or not at all) please connect GND of your switched-mode power supply via an Y-capacitor with protective earth.

**Table dip switches**

▲ (Power supply monitoring of the slave-clock-line)					
SL	S1	S2	SC	S1	S2
▲ 12VDC	ON	ON	▲ 48VDC	OFF	ON
▲ 24VDC	ON	OFF	▲ 60VDC	OFF	OFF

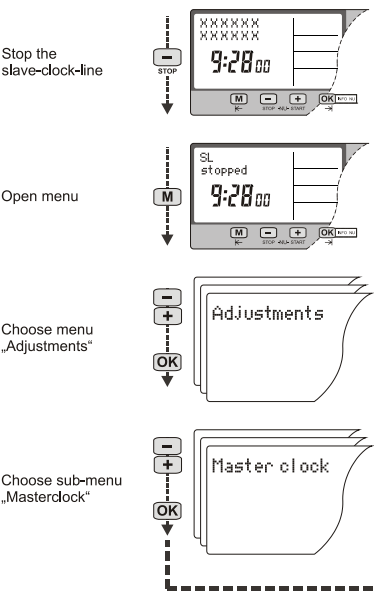
Button function	Symbol legend
<p><b>M</b> (M)</p> <p>1. Automatic-Mode: To access the enter-mode 2. Enter-Mode: To revert to the beginning of the current (sub-)menu.</p>	 <p><b>Power plug symbol (flashing):</b> While the power supply is disconnected, the display shows a power plug symbol. The time switch is then operated in the battery mode. Press <b>OK</b>-button for 1 sec. to "wake up" the time switch.</p>
<p><b>-</b> (STOP) <b>+</b> (NU) (START)</p> <p>1. Automatic-Mode: STOP = Deactivation slave-clock-line (SL) 2. Automatic-Mode: START = Activation slave-clock-line (SL) 3. Enter-Mode: To adjust the flashing digit. To scroll through a choice</p>	 <p><b>DCF/GPS:</b> The master clock receives the signal for the DCF77 time standard.</p>
<p><b>OK</b> (INFO) (NU)</p> <p>1. To activate the time switch when operated without power supply. 2. Automatic-Mode: <b>INFO NU (INFO SL)</b> =&gt; Press <b>OK</b> [Info NU] to change the displayed information while the device is in the Automatic-Mode. 3. Enter-Mode: To confirm the selection or the entered data.</p>	 <p><b>PIN:</b> The time switch is locked; to unlock the device the PIN has to be entered.</p>
<p><b>RESET:</b> Press all front keys for 2 seconds. The time switch is reset. The values for date and time will be deleted and have to be re-entered. The switching program has not been deleted!</p>	<p><b>SL stopped</b></p> <p>The slave clocks receive no pulses from the master clock. The slave clocks are stopped. The missing pulses are stored. After reactivation these pulses will be caught up.</p>
	<p><b>SL running</b></p> <p>Slave clocks are pulsed / clocked every minute</p> <p><b>Exception SC53.17pro:</b> If you have selected minutes-line: Slave clocks are pulsed every minute If you have selected seconds-line: Slave clocks are pulsed every second</p>
<p><b>M</b> <b>-</b> <b>+</b> <b>OK</b></p>	<p><b>SL adjust</b></p> <p>Slave clocks will be adjusted till they show the time of the master clock (time correction / time synchronisation)</p>
	<p><b>SL error</b></p> <p>There is a power failure, overload or short circuit of the slave-clock-line (SL). No pulses are sent to the slave-clock-line (SL).</p>

Menu overview (Automatic-Mode / Enter-Mode)	DCF / GPS receiver	Summertime / Wintertime
<p><b>Automatic-Mode</b></p>  <p><b>Enter-Mode / Menu</b></p> 	<p>The device can process a DCF77-type telegram. The antenna (receiver) is not included in delivery.</p> <p><b>Initial operation of the antenna for DCF/GPS time</b></p> <p><b>NOTE SAFETY INSTRUCTION!!</b> <b>DISCONNECT POWER SUPPLY!!</b></p> <ul style="list-style-type: none"> <li>Connect antenna as stated (manual of antenna)</li> <li>Connect power supply</li> <li>DCF-Symbol  flashes (approx. 3 minutes)</li> <li>DCF-Symbol  appears static and synchronization succeeded</li> </ul> <p>Permanent blinking of DCF-Symbol = permitted signal no reception possible (time base is the internal quartz) No DCF-Symbol = antenna not connected (time base is the internal quartz)</p> <p><b>Adjustment of the atomic clock base:</b> Within menu <b>Options</b> -&gt; <b>DCF</b> an offset to GMT is already configured and can be adjusted! Standard: GMT+1 =&gt; CET</p>	<p>The daylight saving time will be adjusted automatically according to the selected settings (<b>Adjustments</b> -&gt; <b>Summertime</b> (standard European rule))</p> <p><b>Details daylight saving time slave clocks</b> With 60 additional pulses of 1 h. pulse suppression of the slave-clock-line (SL).</p> <p><b>Factory Defaults</b> Within the menu <b>Adjustments</b>-&gt; <b>Factory defaults</b> you can reset the master clock to the state of delivery. Date, time and switching program will be lost!</p> <p><b>PIN-Code</b> Within the menu <b>Options</b>-&gt; <b>PIN-Code</b> the device can be locked with a 4-digit PIN-Code. The code can be adjusted, activated and deactivated. If you have forgotten the code please call customer service.</p>

\*Menu only available for master clocks with time switch functionality. For details please see the manual of the time switch:  
SC 58.17 pro (DIN rail mounting) / SC 98.47 pro (DIN rail mounting) / SC 53.17 pro (19"-housing) / SC 93.47 pro (19"-housing)

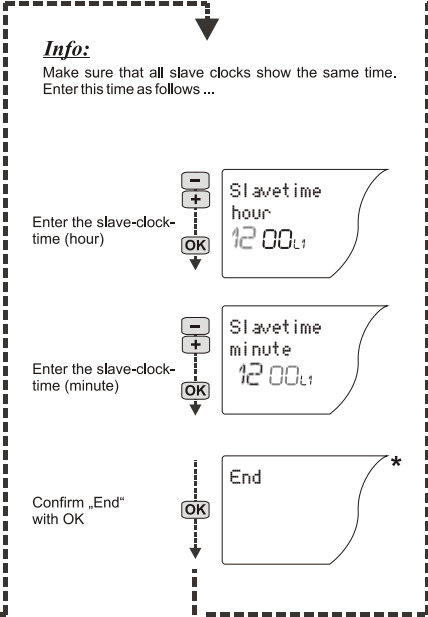
### Set and define slave-clock-line (SL) / Activate slave-clock-line (SL)

#### Stop slave-clock-line



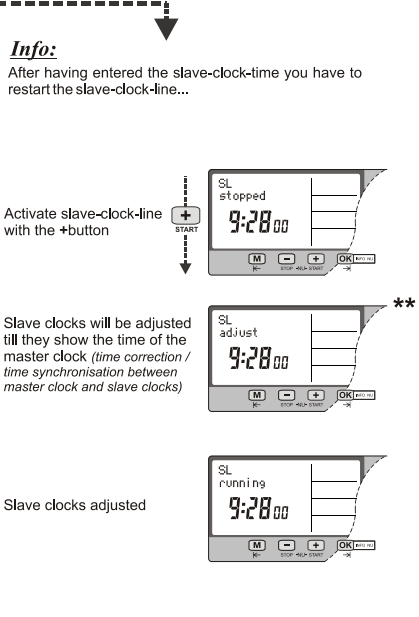
#### Enter slave-clock-time

**Info:** Make sure that all slave clocks show the same time. Enter this time as follows ...



#### Activate slave-clock-line

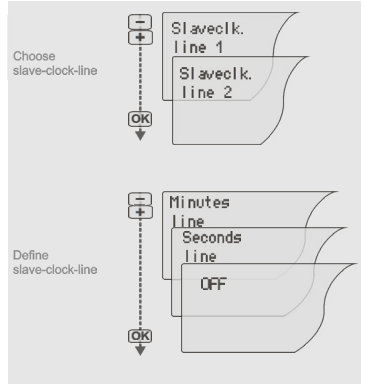
**Info:** After having entered the slave-clock-time you have to restart the slave-clock-line...



#### Exception SC 53.17 pro

**The SC 53.17 pro has two slave-clock-lines!!!**

Before entering the standard settings of the master clock (see on the left) you have to confirm or adjust following line configurations:



\*If you press the +button instead of OK you reach the „prof-mode“ and you can adjust following settings:  
=> Slave clock line pulse in seconds [set the general pulse length]  
=> Slave clock line pause for time adjustment in seconds [Duration of pause between two pulses during the time correction / time synchronisation]

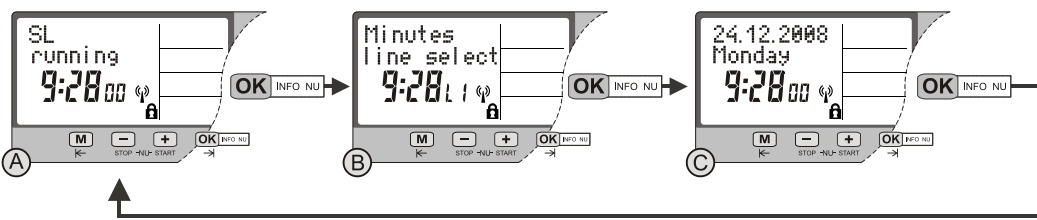
\*\*If an error occurs the display will change from „SC stopped“ to „SC error“ instead of „SC adjust“ or „SC running“. Please check the wiring and settings as well as the safety instructions.

### INFO function

During regular operation (Automatic-Mode) different informations and adjustments of master clock and slave-clock-line can be displayed by pressing **OK** [INFO NU].


After 1 minute the clock changes to standard display automatically!!!

If **SL error** is shown an info query is not possible. Please carry out corrective actions first!!!



NU = SL [slave-clock-line]

### Error / Recovery system of the slave-clock-line (SL)



If there is a power failure, overload, short-circuit or incorrect wiring of the slave-clock-line as well as a power failure of the slave-clock-power-supply „SL error“ is displayed!!

**Recovery system:**  
If „SL error“ is displayed no pulses are sent via slave-clock-line. The complete quantity of suppressed pulses are saved and emitted (**SL adjust**) after corrective actions or power resumption (**SL running**).

**Failure: Slave clocks are 1 minute to late / Slave clocks are 1 minute to early**

If a slave clock is poled reversely the slave clocks are 1 minute late or early!!!

**Corrective action:**

**ATTENTION!! DANGER OF LIFE / RISK OF FIRE AND ELECTRIC SHOCK!!!**  
=> Installation and assembly of electrical equipment must be carried out only by a skilled person!!!  
=> Disconnect device from power supply for wiring and installation purposes!!!

- Stop slave-clock-line (SL)!! Press the **-** button [STOP]. „SL stopped“ is displayed.
- Switch the corresponding wiring !!!PLEASE NOTE THE SAFETY INSTRUCTIONS!!!
- Enter slave-clock-time
- Activate slave-clock-line