Current Interrupter - GPS-Syntakt -

General Information
The **GPS-Syntakt** time switch is used for the synchronous switching of rectifiers, flanges and coupons for cathodic corrosion protection applications.

After having been synchronised, the switching cycle (4/2, 12/3 or 27/3) is maintained even when the device is not in operation and immediately available again even after the time switch has been transported in an instrument car for several weeks.

GPS-Synchronisation
GPS-Syntakt resynchronises itself automatically every 2 hours via the connected GPS antenna and thereby guarantees continuous synchronous switching without time deviations. The GPS reception quality and successful GPS synchronisation (during the last 24 h) are indicated by a two-colour LED on the front panel.

Manual and External Synchronisation
It is possible to manually synchronise via the corresponding push button or externally via another timer when no GPS antenna is connected. In this respect the functions correspond to the functions of the predecessor **Syntakt**.

High-Precision Quartz Time Base
Being equipped with a highly precise and temperaturestabilised quartz time base the **GPS-Syntakt** enables synchronous switching for several weeks without resynchronisation.

Battery Operation
During GPS-operation **GPS-Syntakt's** internal lead-acid storage battery facilitates mains-independent synchronous switching for more than 6 weeks.

During 230 V mains operation the internal storage battery is automatically charged, and the installed charging electronics monitor the charge state.

Night and Weekend Shutdown
It is possible to suspend the switching operation during the night and on weekends via a programmable LCD clock display installed on the front panel in order to maximise the protective current for the pipeline.

Secondary Switching
Power: Mechanic Option: 60 Volt DC / 15 A (via pole terminals) Electronic Option: 100 Volt DC / 30 A (via pole terminals)

Connection of External Slave Relays
To increase the switching power, an external slave relay can be additionally connected when the time switch is 230 V mains-operated. The **LS50** slave relay permits switching power rates of up to 50 A. The **LS100** slave relay permits switching power rates of up to 100 A.

LS50 - Electronic Powerswitch 50 Ampere

Powerswitch with electronic relay. Build for usage in combination with a switcher.

The LS50 is intended for switching of CP rectifiers, flanges, soutirages and drainages.

Easy to install with no need for checking the switching polarity, as the LS50 switches polarity independent.

LS100 - Electronic Powerswitch 100 Ampere

Powerswitch with electronic relay. Build for usage in combination with a switcher.

The LS100 is intended for switching of CP rectifiers, flanges, soutirages and drainages.

Easy to install with no need for checking the switching polarity, as the LS100 switches polarity independent.

Technical data LS50

Housing:	Metal with built-in heat distribution plates
Switching Power:	50 A (100 V DC / 70 V AC)
Operating Temperature:	-20°C up to 60°C
Dimensions:	W 110 x H 70 x D 160 mm (incl. 30 mm pole clamps)
Weight:	1.2 kg
Item No.:	140201

Technical data LS100

Housing:	Metal with built-in heat distribution plates
Switching Power:	100 A (100 V DC / 70 V AC)
Operating Temperature:	-20°C up to 60°C
Dimensions:	W 125 x H 75 x D 160 mm (incl. 30 mm pole clamps)
Weight:	1.25 kg
Item No.:	140211

Technical data - GPS-Syntakt -

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Switching cycles (On/Off)	4 / 2 s, 12 / 3 s, 27 / 3 s
	(other switching cycles at extra charge)
GPS antenna	Type Garmin, with 5 m cable
GPS synchronisation	every 2 h, accuracy < 10 ms
Time deviation	maximum ± 10 ms / 24 h at 20°C
	maximum ± 20 ms / 24 h at 0°C - 40°C
Switching power	30 V DC / 15 A (via pole terminals)
	230 V AC / 6 A (via socket)
Operating temperature	- 20°C to + 60°C
Power supply	lead-acid storage battery 6 V / 12 Ah
	and 230 V AC / 5 VA
Operating time / charge	approx. 1.200 h with GPS antenna, at 12 / 3 and 20°C
	approx. 1.500 h without GPS antenna, at 12 / 3 and 20°C
Housing	aluminium with variable grip
Dimensions (WxHxD)	173 x 110 x 151 mm (housing)
	80 mm diameter (GPS antenna)
Weight	4.1 kg with GPS antenna

GPS Synchronisation

- Set the <**Cycle**> switch to the desired switching cycle (e.g. 12/3)

- Set the <**Mode**> switch to [**1 Normal**] or for an operation including night and weekend shutdown to [2 Timer]

- Insert the bullet connector of the GPS antenna in the [**Signal GPS**] socket of **GPS-Syntakt**.

- Align the GPS antenna as horizontally as possible with an unobstructed view of the sky. It is possible to position the antenna horizontally below a plastic main cover inside a rectifier cabinet. A GPS reception in metal cabinets, buildings or in forests underneath dense vegetation is mostly impossible.

- In general, only one successful GPS reception within 24 h is necessary due to the highly precise and temperature-stabilised quartz time base of **GPS-Syntakt**.

- During mains operation GPS reception attempts are performed continuously. During battery operation GPS reception attempts are only made every 2 h to spare the storage battery. However, by pressing the <**Battery Mode**> push button twice (on and off) it is possible to manually start a new GPS reception attempt at any time during battery operation.

- The (**Signal GPS**) LED indicates a sufficient GPS signal by flashing in **Green** colour. It is flashing in **Red** colour when the signal is insufficient.

- A **Green** (**GPS SYNC**) LED signalises at least one successful GPS synchronisation during the last 24 h. A **Red** LED indicates that there has not been any GPS synchronisation during the last 24 h.

- The (**GPS SYNC**) LED is flashing during battery operation to keep the current consumption low. It is continuously illuminated during 230 V mains operation.

Display and Control Elements
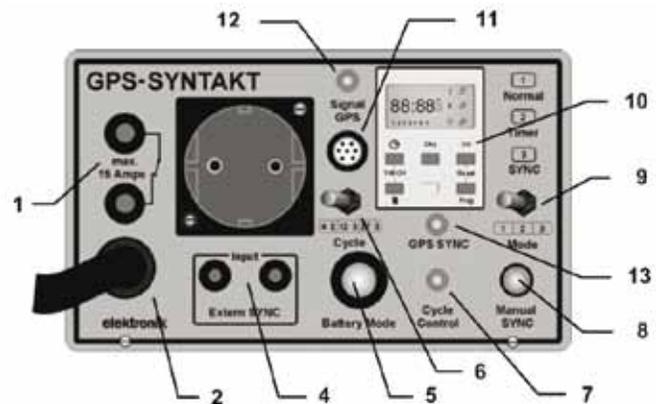
1 = Pole terminals for potential-free switching, max. 15A / 30V
2 = Power cord with safety plug for 230V mains operation
3 = Grounding receptacle switches 230V with max. 6A
4 = Inputs for external synchronisation
5 = <Battery Mode> push button for switching during battery operation
6 = <Cycle> switch for selecting the switching cycle
7 = (Cycle Control) LED for indicating the cycle
8 = <Manual Sync> push button for manual synchronisation
9 = <Mode> for selecting the operating mode (Normal / Timer / SYNC)
10 = Clock display for night and weekend shutdown
11 = Input for GPS antenna
12 = (Signal GPS) LED for indicating the GPS signal quality
13 = (GPS Sync) LED indicates successful GPS synchronisation

Manual Synchronisation

- Set the <**Cycle**> switch to the desired switching cycle (e.g. 12/3)

- Set the <**Mode**> switch to [**3 Sync**]

- Supply **GPS-Syntakt** with 230 V or press the <**Battery Mode**> push button for battery operation. **GPS-Syntakt** starts switching with the „old" synchronisation

- Press the <**Manual SYNC**> push button once for manual synchronisation, thereby deleting the „old" synchronisation and replacing it by the new manual synchronisation.

- To prevent an incidental resynchronisation, you have to set the <**Mode**> switch back to [**1 Normal**] at any rate.

External Synchronisation („Master" and „Slave")

- Set the <**Cycle**> switch to the desired switching cycle (e.g. 12/3)

- Set the <**Mode**> switch to [**3 Sync**]

- Supply the **GPS-Syntakt** with 230 V or press the <**Battery Mode**> push button for battery operation. **GPS-Syntakt** starts switching with the „old" synchronisation

- Connect the two <**Extern SYNC**> sockets of **GPS-Syntakt** („Slave") via two lines to the potential-free contacts of the „Master" time base The „Master" time base has to switch with the same cycle (e.g. 12/3) as **GPS-Syntakt**

- Press the <**Manual SYNC**> push button once. It is flashing and **GPS-Syntakt** now waits as „Slave" for the cycle of the „Master" and synchronises to the externally created cycle

- To prevent an incidental resynchronisation, you have to set the <**Mode**> switch back to [**1 Normal**] at any rate.