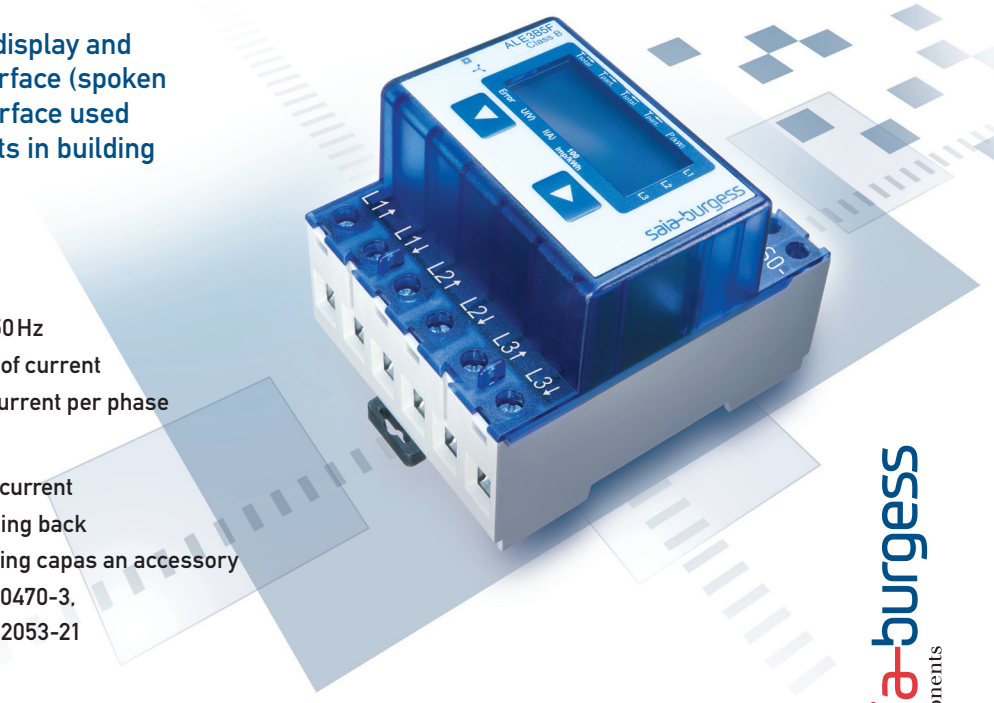
Data sheet

S0-Interface
ALE3

ALE3 3-phase, bidirectional energy meter with integrated S0-output

Controls Division

Bidirectional energy meter with LC display and integrated S0-interface. The S0-interface (spoken S-zero-interface) is a hardware interface used in the transmission of measurements in building automation.



Specifications:

- 3-phase energy meter, 3 × 230 / 400 VAC 50 Hz
- Direct metering to 65 A in both directions of current
- Display of the active power, voltage and current per phase
- Display of the total active power
- S0-output; independent of the direction of current
- 7-digit display for energy supply and feeding back
- Can be sealed and is provided with a sealing capas an accessory
- Accuracy class B in accordance with EN50470-3, Accuracy class 1 in accordance with IEC62053-21

Order number:

Standard version:	ALE3B5F10KC2A00
Version MID:	ALE3B5F10KC3A00
Sealing capas:	4 104 7485 0

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Control Systems and Components

Technical data

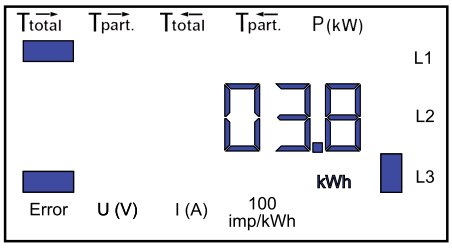
Accuracy class	B in accordance with EN50470-3, Class 1 in accordance with IEC62053-21	
Operating voltage	3 × 230 / 400 VAC, 50 Hz	
	Tolerance -20 %/+15%	
Reference current/ measuring current	I_{ref} = 10 A, I_{max} = 65 A	
Start current /min current	I_{st} = 40 mA, I_{min} = 0.5 A	
Power consumption	Active 0.4 W per phase	
Meter range	00'000.00…99'999.99 100'000.0…999'999.9	
Display	Backlight LCD, numbers 6 mm high	
Display without mains voltage	Condenser protected LCD	
	maximum 2 times in 10 days	
S0-output (interface)	Optocoupler max. 30 V / 20 mA and min. 5 V, impedance 100 Ω, pulse duration 30 ms	
Transmission distance	S0-output max. 1000m (at 30V/20mA)	
Pulses per kWh		
	LCD display	100 pulses/kWh
	S0-output	1000 pulses/kWh

Assembly

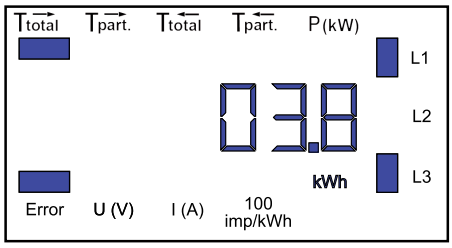
Assembly	On 35 mm top-hat rail in accordance with EN60715TH35
Connections Main current circuit	Conductor cross section 1.5–16 mm², Pozidrive screwdriver size 1, flat-head screwdriver size 2, torque 1.5–2 Nm
Connections Control current circuit	Conductor cross section 2.5 mm², Pozidrive screwdriver size 0 or flat-head screwdriver size 2, torque 0.8 Nm
Insulating properties	4 kV / 50 Hz test in accordance with VDE0435 for energy meters
	6 kV 1.2 / 50 µs overvoltage in accordance with IEC255-4
	Device protection class II
Ambient temperature	–25 °…+55 °C
Storage temperature	–30 °…+85 °C
Relative humidity	95 % at 25°…+40 °C, without condensation
EMC/resistance	Surge voltage in accordance with IEC61000-4-5 at the main current circuit 4 kV at the S0-interface 1 kV
	Burst voltage in accordance with IEC61000-4-4, at the main current circuit 4 kV at the S0-interface 1 kV
	ESD in accordance with IEC61000-4-2, contact 8 kV, air 15 kV

Error display

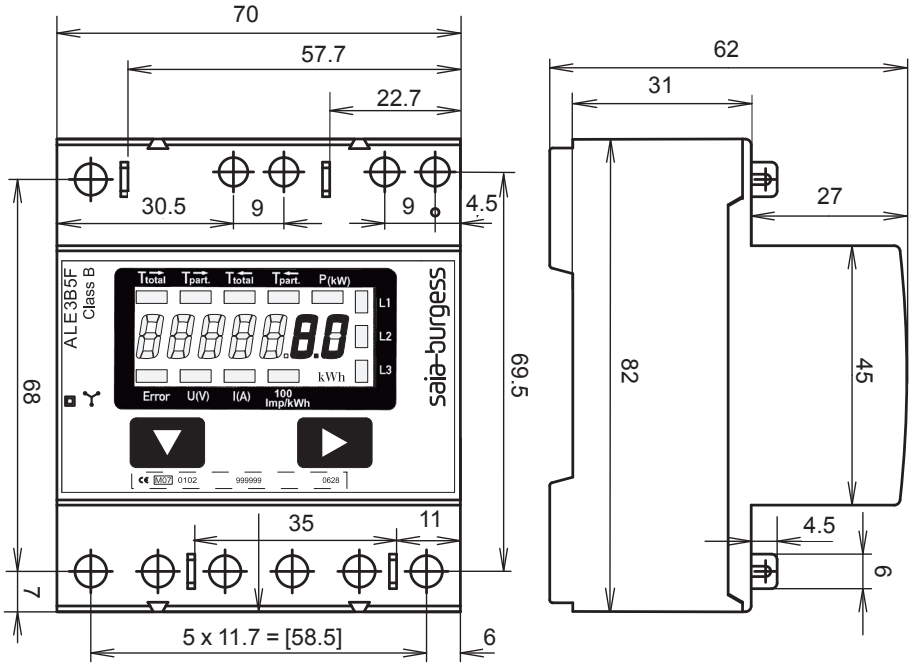
Example: Connection error at L3



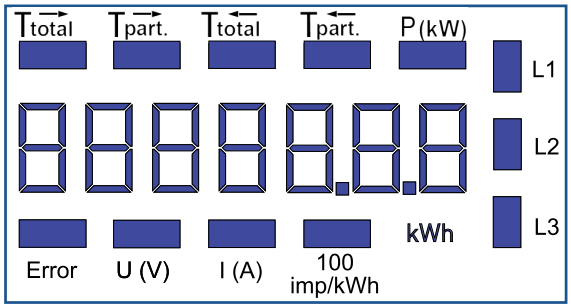
Example: Connection error at L1 and L3



Dimension drawings

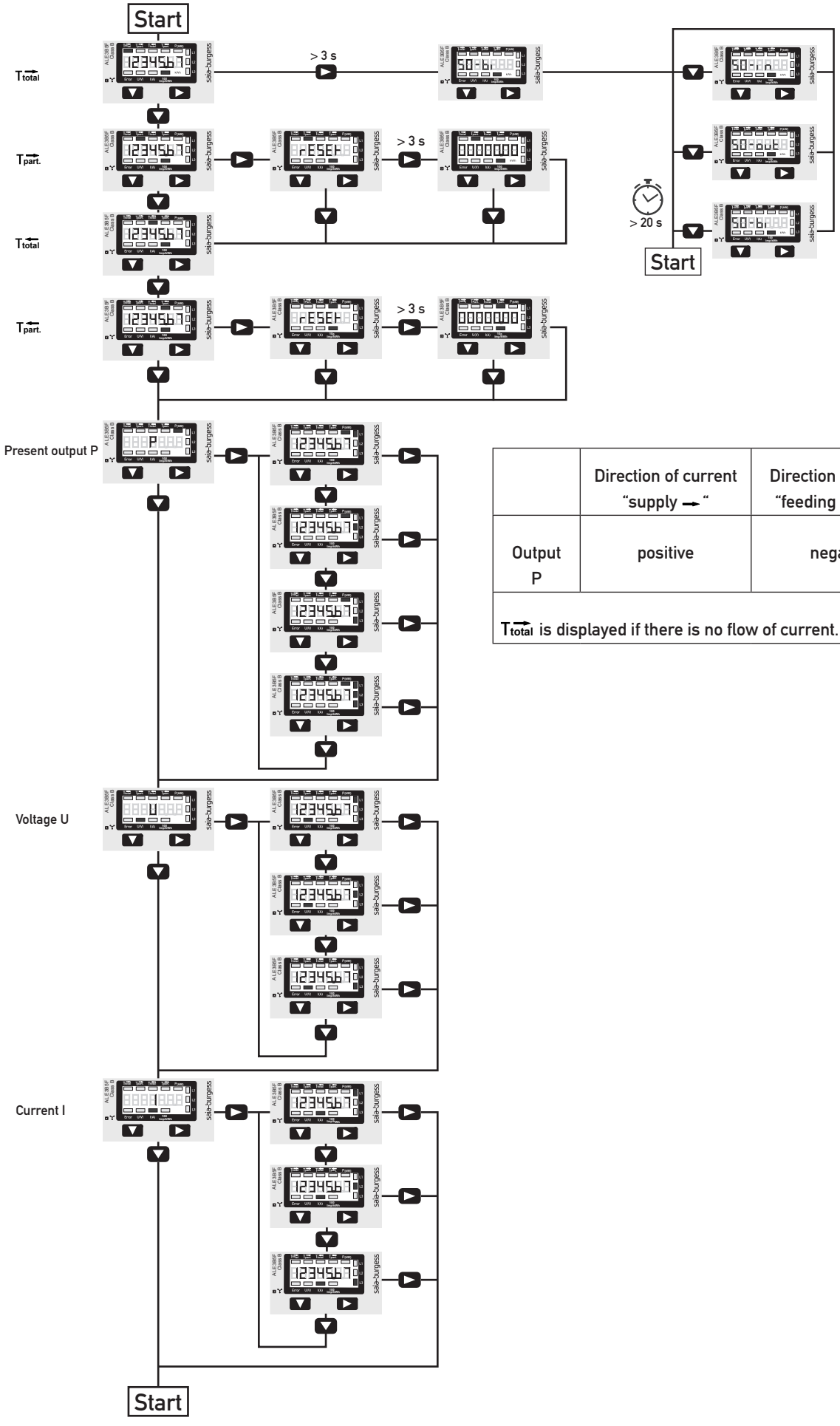


Display components, direct measurement



- T_{total} Shows the total consumption T→
- $T_{part.}$ Shows the partial consumption at T→, this value can be reset
- T_{total} Shows the total consumption T←
- $T_{part.}$ Shows the partial consumption at T←, this value can be reset
- P (kW) Shows the present output per phase or for all phases
  Current «→»= supply (P positive)
  Current «←»= feedback (P negative)
- U (V) Shows the voltage per phase
- I (A) Shows the current per phase
- 100 pulses/kWh Pulses in accordance with the supplied power
- kWh Shows the unit kWh in the consumption or in the feedback display
- L1 / L2 / L3 Displays the corresponding phase for the P, U, I or error display
- Error In the absence of a phase. The corresponding phase is also displayed.

Menu used to display the values on the LCD display



	Direction of current "supply →"	Direction of current "feeding back ←"
Output P	positive	negative
T_{total} is displayed if there is no flow of current.		

Connection diagram / Method of operation

Energy is added as indicated by the arithmetic operator. Positive output in the meter indicates that energy is being supplied, while negative output indicates that energy is being delivered. The energy measurement is carried out in accordance with mode 2, is balanced.

If the supply of energy (P positive) is greater than the delivery of energy (P negative), the counter T→ increases.
The LCD segment «100 pulses/kwh» is OFF and only switches on if there is a pulse.

If the delivery of energy is greater than the supply of energy, the counter T ← increases.

The LCD segment «100 pulses/kwh» is ON and only switches off if there is a pulse.

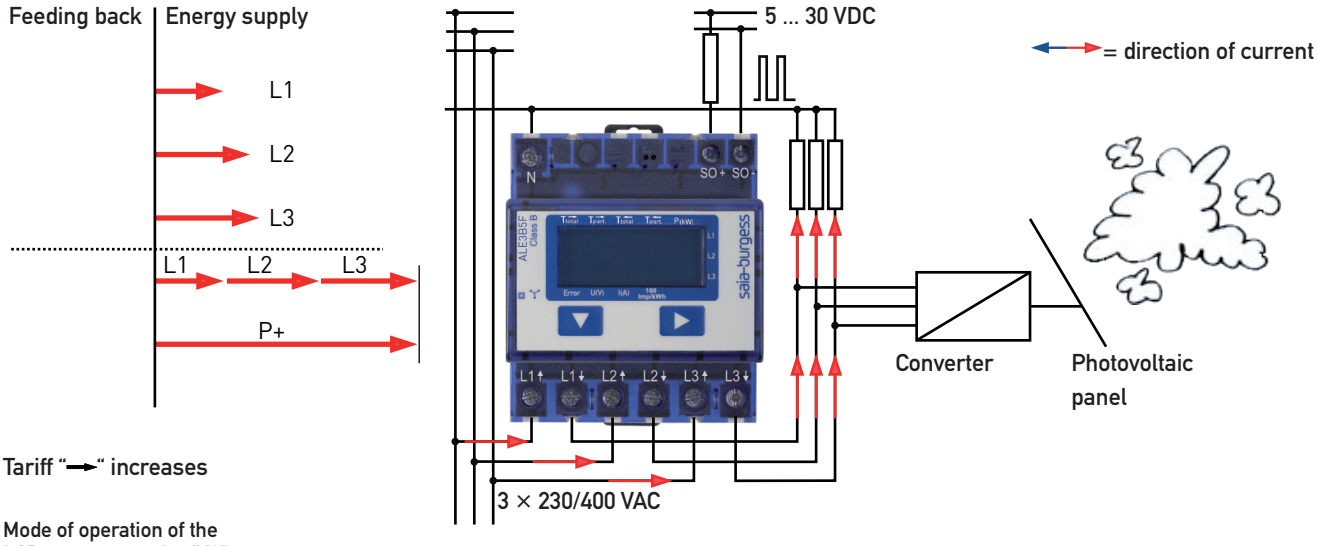
The S0 output can be configured.

S0 IN: S0 pulses only for consumption

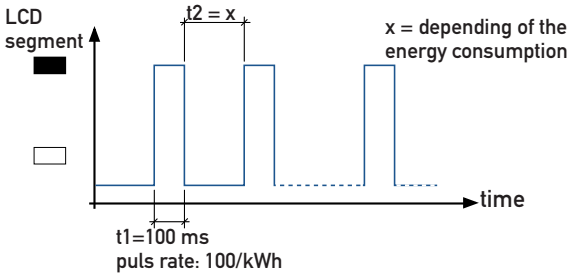
S0 OUT: S0 pulses only for feeding back

S0 BI: S0 pulses for both directions of current

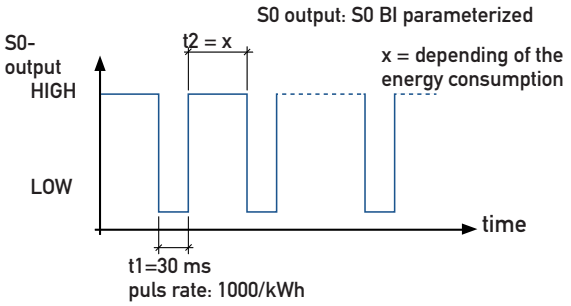
Method of operation with direction of current «supply →»



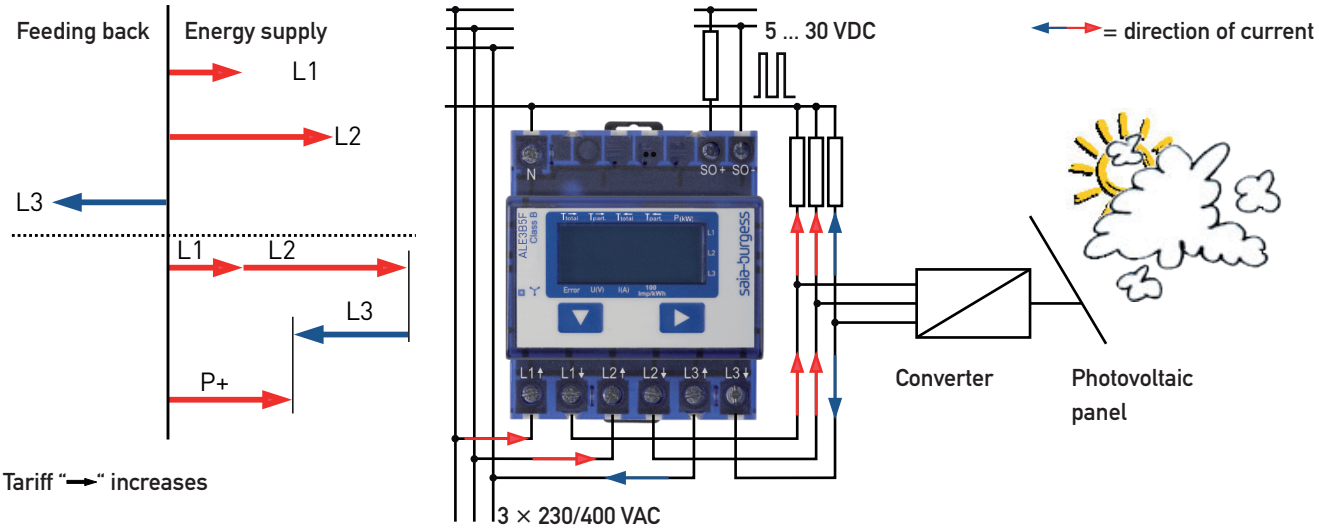
Mode of operation of the LCD segment «pulse/kWh»



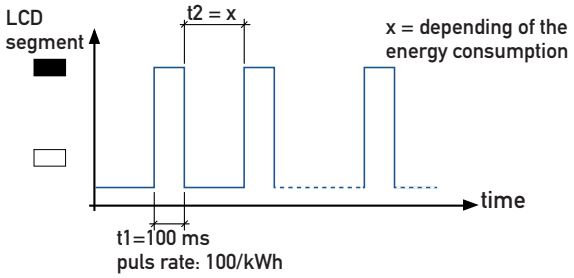
S0 output: S0 BI parameterized



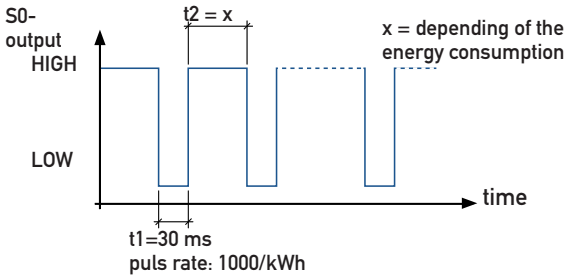
Method of operation with direction of current «supply →» and «feedback ←»



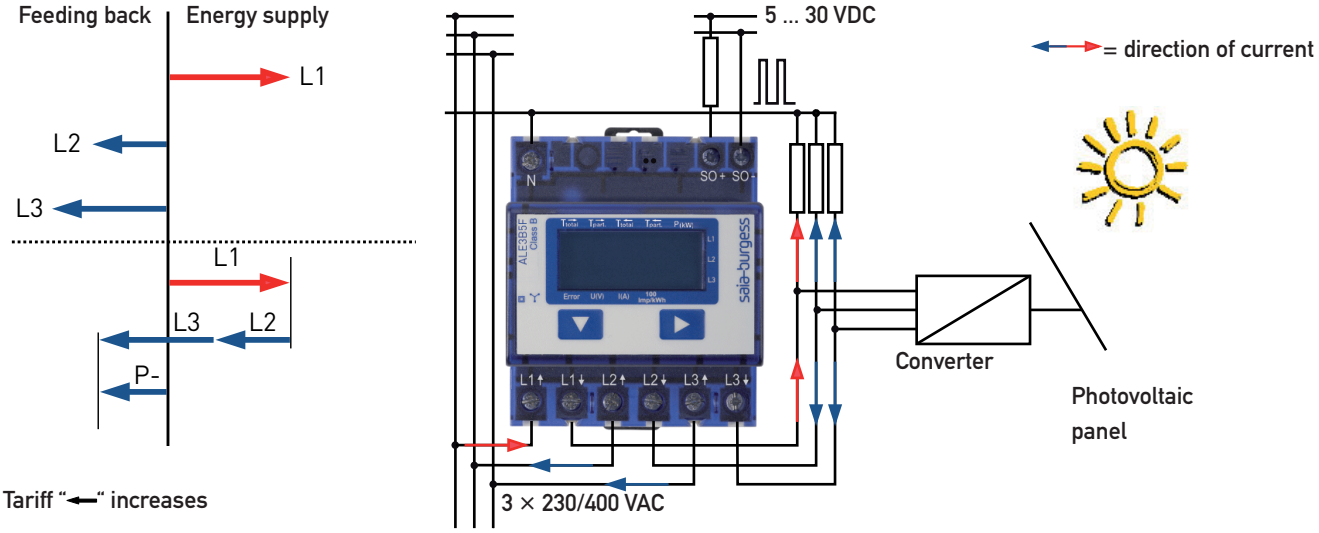
Mode of operation of the LCD segment «pulse/kWh»



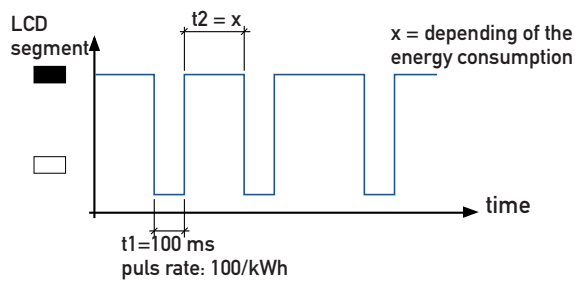
S0 output: S0 BI parameterized



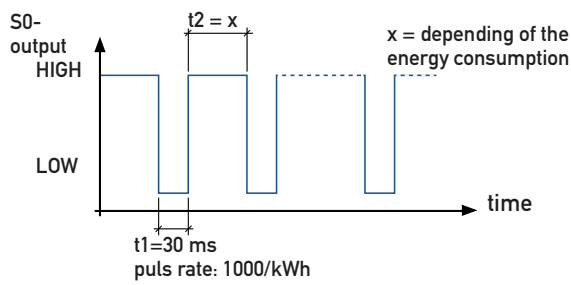
Method of operation with direction of current «feedback ←»



Mode of operation of the LCD segment «pulse/kWh»



S0 output: S0 BI parameterized



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Control Systems and Components

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