

S0 Converter

Reads electricity meters with S0 interface

Passive or active output

24 V supply and pulses in a two-wire cable

Jumpers enable configuration

Simple meter connection

Connects directly to mains before HFI

Double insulation



Application and Design

The S0 converter is a pulse converter and voltage supply combined. The converter is designed to be fitted directly onto any electricity meter that has an S0 output and a standard DIN terminal box. Sealing screws are included in the supply. Alternatively, the converter can be fitted on a flat surface using self-cutting screws.

The pulse signal from the electricity meter's S0 output is converted to a passive open collector output, which can be transferred as 1 pulse/kWh to a remote display, CTS, SRO, computer, PLC plant or Kamstrup's MULTICAL® II SA. Furthermore, the converter can transmit 24 V active pulses to small remote counters. This feature makes it ideal as pulse and power supply for Kamstrup's thermal heat meter; MULTICAL® III, MULTITAF etc.

The S0 converter divides the S0 pulses from the electricity meter into 1 pulse/kWh, transmitting this pulse to external equipment, e.g. Kamstrup's MULTICAL® thermal heat meter, MULTITAF, computer, CTS, SRO plants or similar, where it is stored, processed or transmitted. Furthermore, the converter can be programmed to supply external equipment with 24 V DC.

The converter has open collector pulse output or 24 V input with power down to "0" V as pulse.

If the pulse output is used as 24 V supply for MULTICAL® III, the polarity is of no importance.

If both 24 V and pulse registering are to be used, a special power supply must be fitted in MULTICAL® III.

The maximum power consumption on the 24 V output is 15 mA.



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Design (cont.)

With open collector (passive)

off: $U_c < 40 \text{ V DC}$
on: $I_c < 50 \text{ mA}$

The two-wire output has a pulse duration of 65 msec. or 1.2 sec., depending on programming. The cable carries both 24 V supply and pulse.

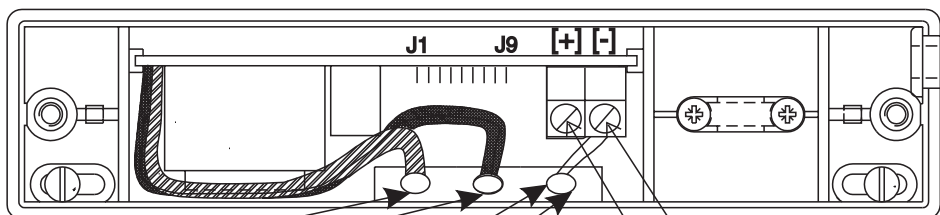
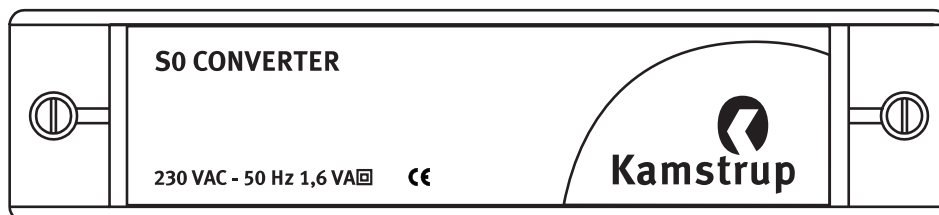
A wire cross section of at least 0.5 mm^2 is recommended. Maximum cable length is 200 m.

When using cable lengths in excess of 30 m - or in a noisy environment - screened or twisted pair cable is advisable.

Technical Data

ELECTRICAL DATA		MECHANICAL DATA	
Voltage supply	230 V AC +10/-15 %	Protection class	IP 20
Power consumption	1.6 VA	Weight	0.2 kg
Pulse input	S0 according to DIN 43864	Temperature range	-40...+ 60°C
Output	Passive "On" < 50 mA "Off" 3 - 40 V	Storage temperature	-40...+ 70°C
	Active 24 V DC +25/-25% max. 15 mA	Relative humidity	< 90 % non-condensing
Pulse duration	65 msec. ±15% or 1.2 sec. ±15%	Installation	Directly on electricity meter's terminal box or surface mounted.
Primary fuse	Print cut out	Materials:	
Secondary fuse	Fused transformer	Box	Lexan 940A
Markings	CE	Lid	Lexan 940A
EMC Data Immunity	EN 50 082-1	Front panel	Polycarbonate Lexan 8B35-112
Emission	EN 50 081-1		

Dimensional Drawing



Brun: fase
Blå: nul

Rød, S0 ind [+]
Sort, S0 ind [-]
Puls ud [-]
Puls ud [+] / 24 V DC

Length: 160 mm
Height: 36 mm
Depth: 40 mm

Configuration

The divider, pulse duration and output configuration are all determined by means of a 2x9 pole connector by the position of jumpers.

The pulses are divided by means of a microcontroller, which is configured when the voltage supply is connected.

If you wish to change the code, disconnect the supply before moving the jumpers.

Code 0: No jumpers fitted, 1: Jumpers are fitted.

Jumper 1 - 9 are marked on the PCB.

Example:

The converter is with open collector, passive pulse output, with 1 pulse pr kWh. The electricity meter emits 640 pulses pr kWh - the duration of each pulse being 1.2 sec.

Configuration:

Jumper	1	2	3	4	5	6	7	8	9
Code	0	1	1	0	0	1	0	1	0

Code

The pulse count displayed by the electricity meter can be read in the following table under "IN".

Jumper position 1 2 3 4 5	IN pulse/kWh	OUT kWh/pulse	IN pulse/kWh	OUT kWh/pulse	IN imp./kWh	OUT kWh/pulse
0 0 0 0 0	600	1	6000	0.1		
1 0 0 0 0	10000	1			1000	10
0 1 0 0 0	6000	1			600	10
1 1 0 0 0	4800	1			480	10
0 0 1 0 0	1250	1				
1 0 1 0 0	1000	1	10000	0.1	100	10
0 1 1 0 0	640	1				
1 1 1 0 0	480	1	4800	0.1		
0 0 0 1 0	360	1				
1 0 0 1 0	240	1			24	10
0 1 0 1 0	100	1	1000	0.1	10	10
1 1 0 1 0	10	1	100	0.1	1	10
0 0 1 1 0	1	1	10	0.1		
1 0 1 1 0	500	1			50	10
0 1 1 1 0	150	1				
1 1 1 1 0	75	1				
0 0 0 0 1	50	1	500	0.1		
1 0 0 0 1	30	1				
0 1 0 0 1	25	1				
1 1 0 0 1	24	1	240	0.1		
0 0 1 0 1	16	1				
1 0 1 0 1	15	1				
0 1 1 0 1	12	1				
1 1 1 1 1	8	1				
0 0 0 1 1						
1 0 0 1 1						
0 1 0 1 1						
1 1 0 1 1						
0 0 1 1 1						
1 0 1 1 1						
0 1 1 1 1						
1 1 1 1 1						

Pulse duration
= 65 msec.:
= 1.2 sec.:

Jumper pos. 6
0
1

Output
Output = 24 V DC and pulse :
Output = pulse from open collector :

Jumper pos. 7	pos. 8	pos. 9
1	0	1
0	1	0

Installation

The converter should be installed - with 230 V, 50 Hz - prior to the fuse box and HFI relay. The supply input is safeguarded by a built-in cutout on the PCB and a fused transformer which is protected against short circuiting.

Pulse / 24 V output: Min. 0.5 mm² recommended
Two-wire cable connected to terminals marked + and - out.

Open collector output Min. 0.5 mm² recommended
External + to the terminal marked: + out
External - connect to the terminal marked: - out.

S0 pulse input:

0.5 mm² multicore cable

Connect the red wire to the electricity meter's S0 pulse +

Connect the black wire to the electricity meter's S0 pulse -

Supply 230 V 50 Hz:

1.5 mm² multicore cable

Connect the blue wire to neutral

Connect the brown wire to live

If the connection cables are to be extended, use cable of the same type and dimension.

Sealing

The converter can be sealed by threading sealing thread through the sealing screw in the base. The lid can also be sealed by threading sealing thread through the eyes in the external screws provided for this purpose.

Order Specification

Type No. 68-31-001 S0 converter

The converter has code 00000 0 101 when supplied, which suits an electricity meter with 600 pulses/kWh and 24 V pulse output with pulse duration of 65 msec. Four extra jumpers for configuring are included in the supply.

Accessories

Type No.	Description
66-00-500-100	Power supply for MULTICAL® III
68-30-001	Accessories for wall mounting

Authorized Distributor

Please contact Kamstrup A/S for information about your nearest distributor.