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AS-Interface power on three phases

SLA8.300

Data sheet

- Input: 3 AC 400-500V
- No neutral wire required
- Output: 30.5V / 8A
- AS Interface data decoupling
- Infrared (IR) addressing mode
- Overload protection by FUSE Mode
- For highly demanding industrial applications



Short description

Data and energy:

The primary switched mode DIN rail power supply SLA8.300 specifically supplies AS Interface® systems with energy. The AS-Interface bus technology allows to connect up to 62 participants to a control and to supply them with energy with a single two-conductor cable. When connecting slaves, the yellow AS-Interface cable offers the high degree of protection IP67 in conjunction with the insulation displacement. The communication signals of the individual network participants are modulated onto the supply voltage. For this purpose, specific power supply units with integrated data decoupling are required for AS-Interface systems.

Fast addressing of slaves:

The "IR addressing mode" selectable via jumper interrupts the data com-

munication on the yellow AS-Interface cable. Participants with an infrared interface can then quickly be assigned a new ID address by means of an infrared programming unit without the need to disconnect them from the AS-Interface cable. Afterwards, the "Communication Mode" can be selected again to restart the data communication.

Safe operation by FUSE Mode:

The device features a FUSE Mode, which permanently switches off the output in the event of failure and the unit at overload, short-circuit or overtemperature and thus protects the relatively thin AS-Interface line and the attached components. Triggering of the FUSE Mode is indicated by a flashing LED. System restart requires the intentional activation of a reset button on the front side of the unit. Thus, an accidental restart is prevented and the slaves are protected against damage.

Input

Rated voltage	3 AC 400-500V
Rated current	3 x 0.8A/0.7A at AC 400V/500V
Frequency	47...63Hz (alternatively also DC possible)
Voltage range	3 AC 340...576V, DC 450...820V

2-phase operation is specified and permissible. Connection to 3 phases is recommended due to reduced component stress. Internally fused on each phase. External fusing is only necessary as required for input line protection.

Power factor	>0.52		
Integrated internal fuses	3xT2A5 HBC (not accessible)		
Inrush current	limited by NTC resistor T _{amb} = +60°C, cold start (line impedance acc. EN 61000-3-3)		
Peak current I _{pk}	3 AC 400V	3 AC 500V	DC 820V
i ² t	<1.5A ² s	<2.5A ² s	<3.5A ² s

EN 61000-3-2 (harmonic current emissions) is fulfilled

Hold-up time	>18ms (3-phase operation at AC 340V and rated load); also see diagram
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Output

Rated voltage	DC 30.5V ±3% (not adjustable)
Rated current	8A
Isolation	Safe low voltage PELV (IEC364-4-41) SELV (IEC60950)
Current limitation	> 8.4A
Overload behaviour	FUSE Mode (continuous current for 2...5s, afterwards permanent switch-off)
Short-circuit current	>14A, <20A (max. 5s)
Load regulation	stat. 250mV (no load / full load)
line regulation	stat. 100mV (3 AC 340...550V)
Ripple	50 mV _{pp} (500kHz bandw., 50Ω measurem., ohmic load)
Noise (Spikes)	100mV _{pp} (20MHz bandw., 50Ω measurem., ohmic load)
Overvoltage protection	limited to max. 50V
Operating indicator	Green LED (extinguishes at overload)

Output is protected against short-circuit, open circuit and overload.

Use AS-Interface power supplies only together with AS-Interface lines!

Order information

Order number	Description
SLA8.300	AS-Interface power supply unit
SLZ02	Wall mounting set (two pcs. per package)

FUSE Mode

The FUSE Mode (electronic fuse in the output) protects the unit from overload and overtemperature. The FUSE Mode acts as a fuse for the secondary side and protects cables and slaves.

Shutdown:

- At overtemperature, overload or short-circuit, the unit switches off the output after 2...5s.

Indicator:

- Activation of the FUSE Mode is indicated by a flashing red LED.

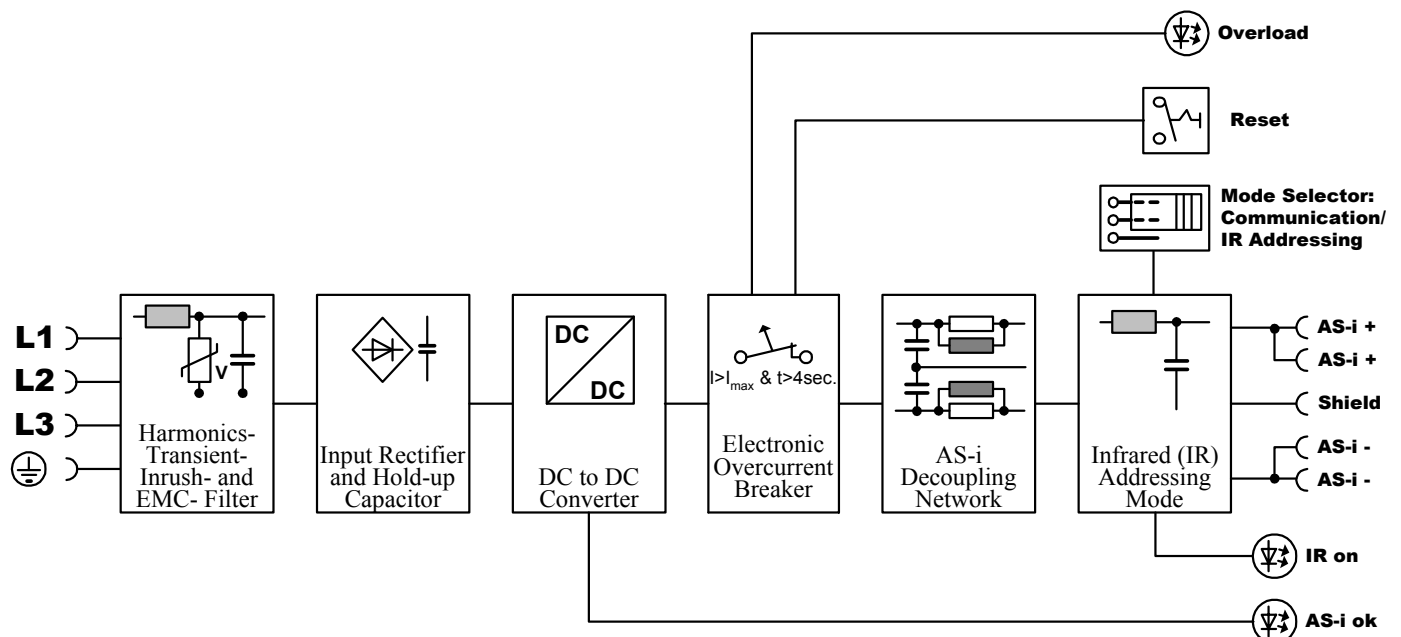
Reset/Restart:

- by intentionally pushing the Reset button on the unit front panel
- by turning off the mains voltage. Before restarting the unit, wait at least twice the time the flashing red LED needed to extinguish after the mains voltage dropped.

Operating and environmental data

Non-operating temperature range	-25°C...+85°C
Operating temperature range	-10°C...+70°C (measured at 25mm below the unit)
Derating	from 60°C 6W/°C onwards, power reduction necessary (see diagram)
Cooling	natural convection, no forced air-cooling necessary
Over-temperature protection	implemented (indicated by a flashing 'Over-load' LED)
Humidity	protect from moisture and condensation
Vibration	2 – 17.8Hz ±1.6cm
• Sinus	17.8Hz – 500Hz 2g (IEC 68-2-6)
• Random	2...800Hz 0.5m ² (s ³) (IEC 68-2-64)
Shock	15g (6ms), 10g (11ms), (IEC 68-2-27)
Degree of pollution	2 (EN 60950)
Overvoltage category	II (IEC 60950), III (EN 50178)

Schematic



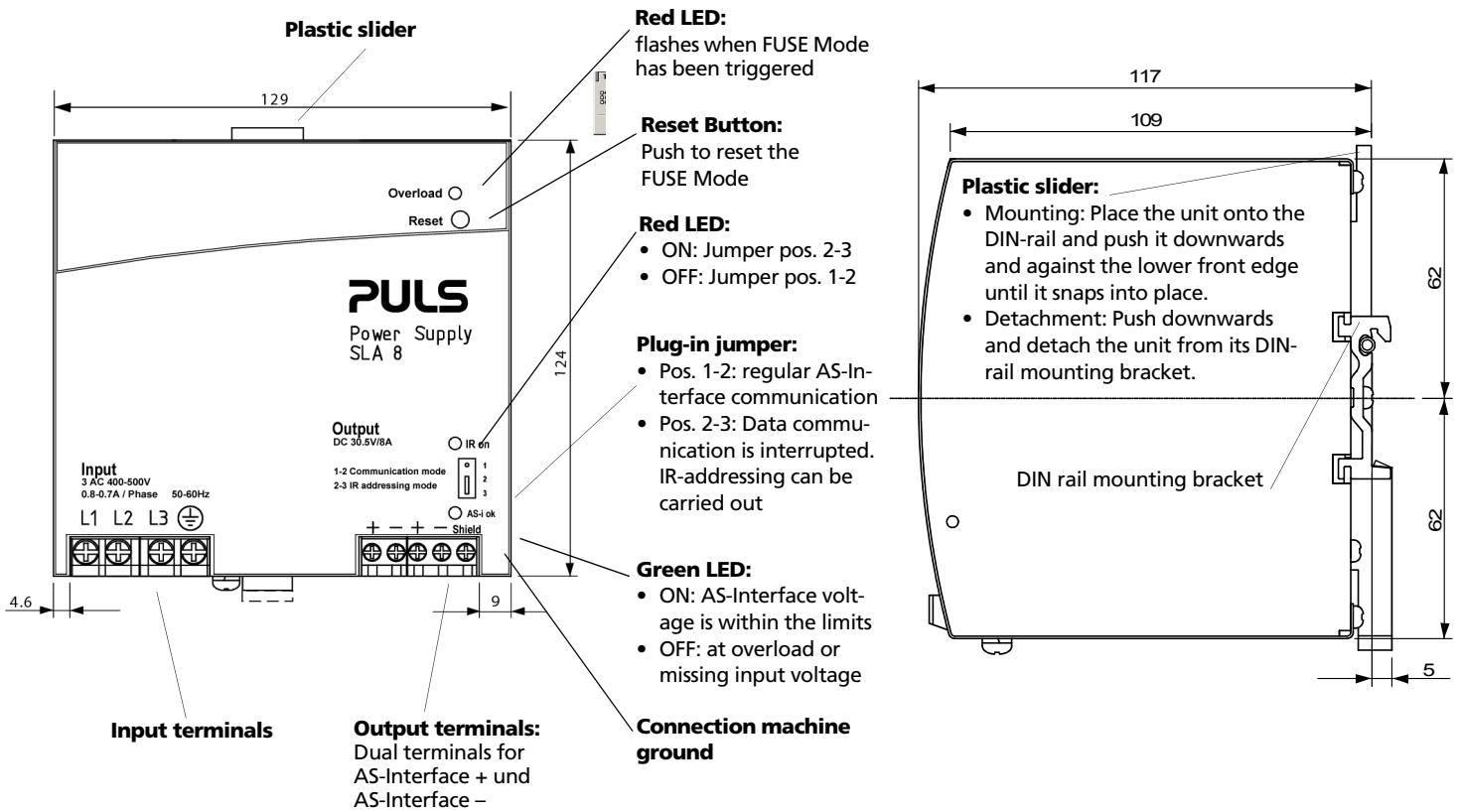
Electromagnetic Compatibility (EMC)

Emissions	EN 50081-1 (EN 55011, EN 55022, Class B conducted noise, Class A radiated noise), EN 61000-3-2 (A14) and EN 61000-3-3
Immunity	EN 61000-6-2 (also includes EN 55024), EN 61000-4-2, Level 4 (withstands 8kV direct discharge, 15kV air discharge)
• Electrostatic Discharge (ESD)	EN 61000-4-3, Level 3 (10V/m) ENV 50204 (10V/m)
• Electromagnetic radiated fields	EN 61000-4-4, Level 3 (10V/m) Level 4 (4kV) Level 3 (2kV)
• Burst, coupled to:	EN 61000-4-5, Installation class 4 (4kV)
– ACin lines	
– DCout lines	Installation class 4 (2kV)
• Surge transients	EN 61000-4-6, Level 3 (10V, 150kHz - 80MHz)
– Differential mode (L→PE)	
– Common mode (L→ N)	EN 61000-4-11
• Conducted noise immunity	Transient resistance acc. to VDE 0160 / W2 across entire load range
• Voltage dips	
• Transient immunity	

Efficiency, Reliability

Efficiency	typ. 91.5% (3 AC 400V, 8A)
Power dissipation	typ. 22.5W (3 AC 400V, 8A)

Operating indicators and elements



Connectors and terminals

Terminals	Fingertouch-proof terminals with captive screws for 5.5mm slotted screwdriver or Philips cross-recessed screwdriver No. 2
Position	Easy to reach terminals on the front panel; input and output clearly separate from each other
Tightening torque	0.8Nm
Connector size range	
• flexibel cable	0.5-4mm ² (20-10AWG)
• solid cable	0.5-6mm ² (20-10AWG)
Ferrules	admissible
Stripping length	7mm

Front elements

⊕	PE terminal
N	Input neutral
L (L1, L2, L3)	Input phase
⊕ brown	Positive AS-Interface output voltage (twice)
⊖ blue	Negative AS-Interface output voltage (twice)
Shield	Connection of machine ground. (Functional earth for balancing the AS-Interface output. Connection is recommended for EMC)

Construction / Mechanics

Housing	Robust metal housing for built-in installation
Degree of protection	IP20 (EN 60529)
Class of protection	1 (IEC536); do not use without protective earth (PE)
Width w	129mm
Height h	124mm
Depth d	117mm (without DIN rail)
Weight	appr. 1160g

Installation notes

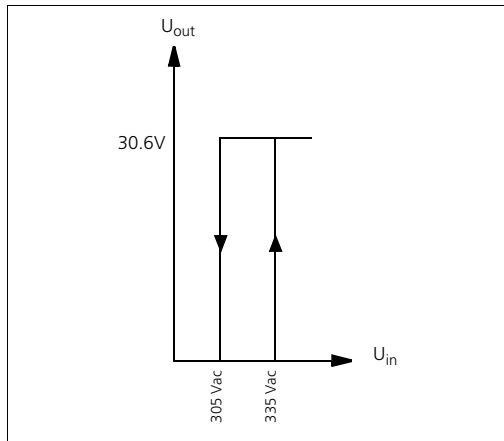
External fusing	<ul style="list-style-type: none"> • not necessary (internal fuse) • observe national regulations • Circuit breaker with B-characteristic min. 6A/ phase or slower action, or alternatively min. 6A HBC fuse
Mounting position	vertical; input below, output above
Free space for cooling	above / below 25mm recommended left / right 15mm recommended

Always connect PE before operating the unit!

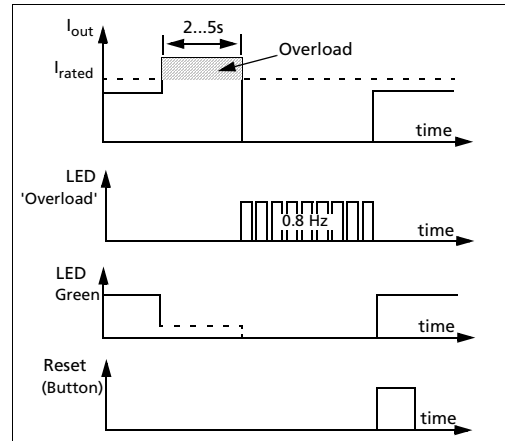
Operation without AS-Interface: This AS-Interface PSU has an inductive output. When operating without AS-Interface structure (e.g. in a laboratory test) you should connect a 470µF / 35V capacitor between AS-Interface + and AS-Interface - as commercial electronic loads in combination with the data decoupling often tend to oscillate, and the oscillation may exceed the permitted modulation voltage. Otherwise, equipment may be destroyed.

Functional diagrams

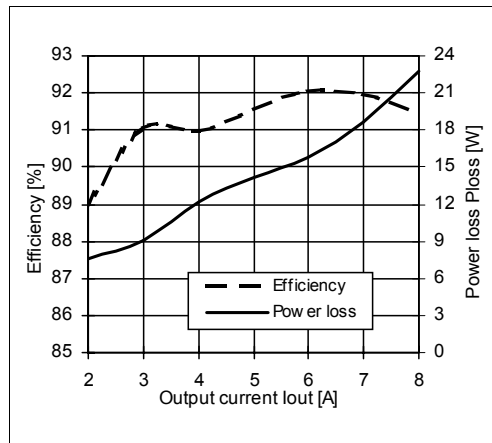
Start behaviour



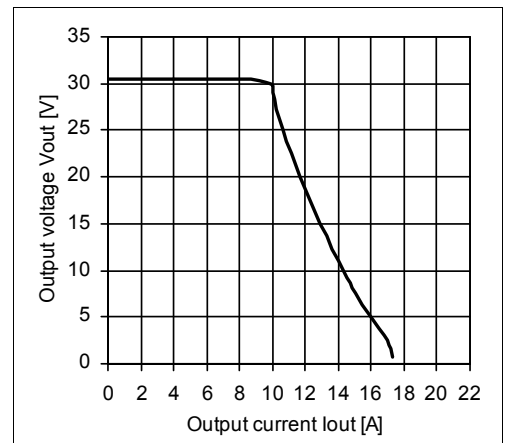
FUSE Mode / Signals and LED



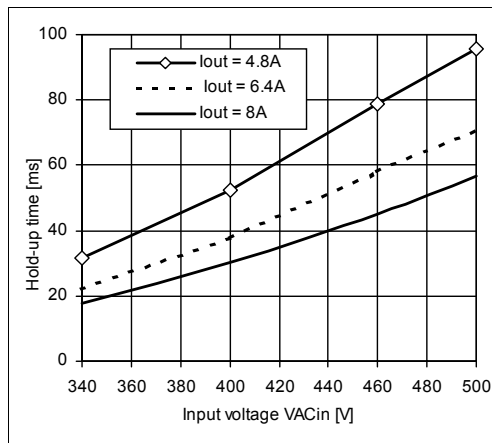
Efficiency / Power dissipation



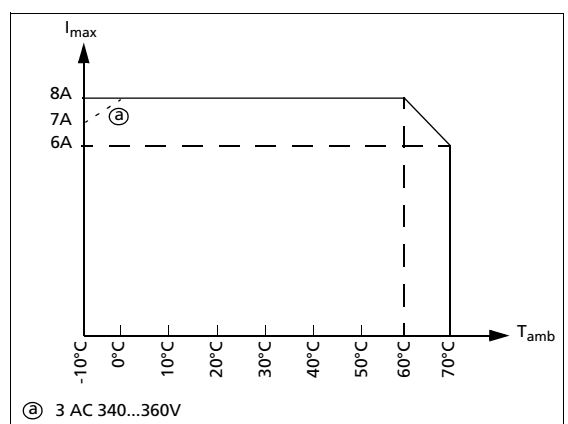
Overload response until FUSE Mode is activated



Hold-up time



Derating



Specifications valid for 3 x AC 400V input voltage, +25°C ambient temperature, and 5 min run-in time, unless otherwise stated. They are subject to change without prior notice.

Your partner in power supply:



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