

AS-Interface Power Supply with 2.8A

SLA3.100

PULS

Data sheet

- Input: AC 115V / 230V
- Output: 30.55V / 2.8A
- AS Interface data decoupling
- Infrared (IR) addressing mode
- For highly demanding industrial applications
- NEC Class 2 Power Supply



Short description

Data and energy:

The primary switched mode DIN rail power supply SLA3.100 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 re-start the data communication.

Fit for the world market:

The input voltage range of the unit can be selected on the front panel. Thus, it can be operated worldwide on all usual single-phase line voltages. International (IEC 60950) and various national (CBscheme) approvals allow for worldwide application.

Input

| | |
|---------------------------------|--|
| Rated voltage | AC 100-120/220-240V (selectable by front panel slide switch) |
| Rated current | 2.0A (switch in 115V position) 0.9A (switch in 230V position) |
| Frequency | 47...63 Hz (alternatively DC also possible) |
| Voltage range | AC 85...132V/184...264V, DC 230...375V |
| Power factor | >0.5 |
| Harmonic current emissions | EN 61000-3-2 [PFC], Class A limits are fulfilled |
| Integrated internal fuse | T2A5 / 250V HBC (not accessible) |
| Inrush current | limited by NTC resistor $T_{amb} = +50^{\circ}\text{C}$, cold start (line impedance acc. EN 61000-3-3) |
| Peak current I_{pk} I^2t | 20A (AC 132V) / 38A (AC 264V) 1.5 A ² s (AC 132V) / 1.8 A ² s (AC 264V) |
| Hold-up time | >26 ms @ AC 100V or 196V and rated load (also see diagram) |

Output

| | |
|--|---|
| Rated voltage | DC 30.55V ±3% (not adjustable) |
| Rated current | 2.8A |
| Isolation | Safe low voltage PELV (IEC364-4-41) SELV (IEC60950) |
| Current limitation | >3.2 A |
| Overload behaviour | Continuous current (also see diagram) |
| Short-circuit current | min. 3.2A, max. 4.6A |
| Load regulation | stat. <200mV (no load / full load) |
| Line regulation | stat. <10mV (AC 85...132V/184...264V) |
| Ripple | <50 mV _{pp} (500kHz bandw., 50Ω measur., ohmic load) |
| Noise (Spikes) | <100mV _{pp} (20MHz bandw., 50Ω measur., ohmic load) |
| Over-voltage protection | max. 55V |
| 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 |
|--------------|--|
| SLA3.100 | AS-Interface power supply unit |
| SLZ11 | Adapter for S7-300 rail |
| SLZ02 | Wall mounting set (two pcs. per package) |

Efficiency, Reliability

| | | |
|-------------------|------------|-----------------|
| Efficiency | typ. 90.5% | (AC 230V, 2.8A) |
| Power dissipation | typ. 9.1W | (AC 230V, 2.8A) |

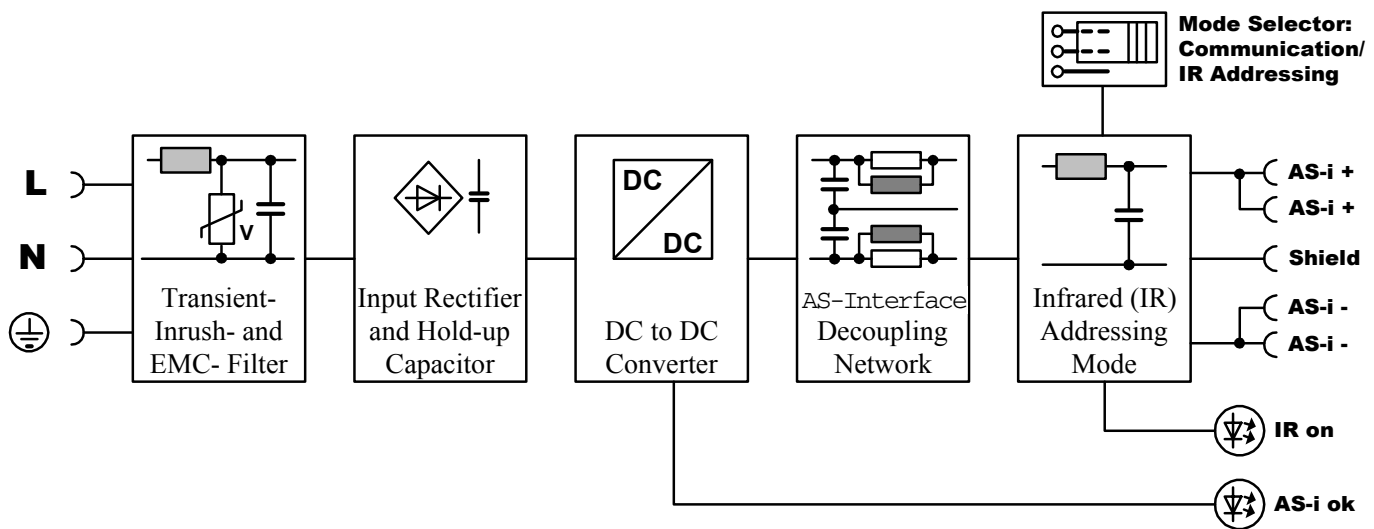
Operating and environmental data

| | |
|---------------------------------|---|
| 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 2W/K onwards, power reduction necessary |
| Cooling | natural convection, no forced air-cooling necessary |
| Over-temperature protection | not implemented |
| Humidity | protect from moisture and condensation |
| Vibration | 2 – 17.8Hz ±1.6mm (IEC 68-2-6) |
| • 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) |

Electromagnetic Compatibility (EMC)

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

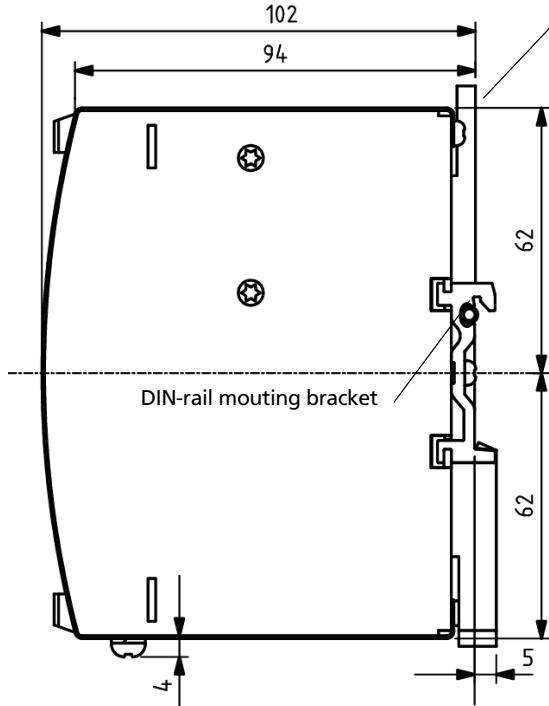
Schematic



Operating indicators and elements

Plastic slider:

- Mounting: Place the unit onto the DIN-rail and push it downwards and against the lower front edge until it snaps into place.
- Detachment: Push downwards and detach the unit from its DIN-rail mounting bracket.



Output terminals:

Dual terminals for AS-Interface + and AS-Interface -

Green LED:

ON: AS-Interface voltage is within the limits.
OFF: at overload or missing input voltage

Plug-in jumper:

Pos. 1-2: regular AS-Interface communication
Pos. 2-3: Data communication is interrupted. IR-addressing can be carried out

Red LED:

ON: Jumper position 2-3
OFF: Jumper position 1-2

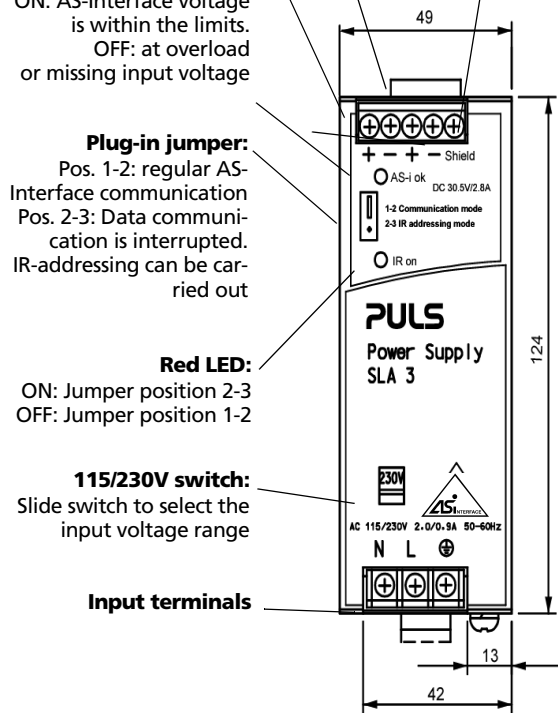
115/230V switch:

Slide switch to select the input voltage range

Input terminals

Plastic slider

Machine ground connection



Connectors and terminals

| | |
|-------------------|--|
| Terminals | Fingertouch-proof terminals with captive screws for 5.5 mm 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 | 0.8 Nm |
| Wire gauge | |
| • flexible 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 | Input phase |
| | Positive AS-Interface output voltage (twice) |
| | 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 (IEC 60536); do not use without protective earth (PE) |
| Width w | 49mm |
| Height h | 124mm |
| Depth d | 102mm (without DIN rail) |
| Weight | appr. 500g |

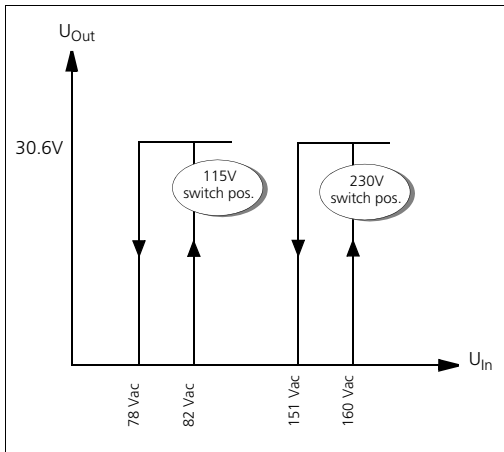
Installation notes

| | |
|--|--|
| External fusing | <ul style="list-style-type: none"> • not necessary (internal fuse) • observe national regulations • circuit breaker with B-characteristic min. 6A or slower action, or alternatively 16A HBC fuse recommended |
| 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! | |

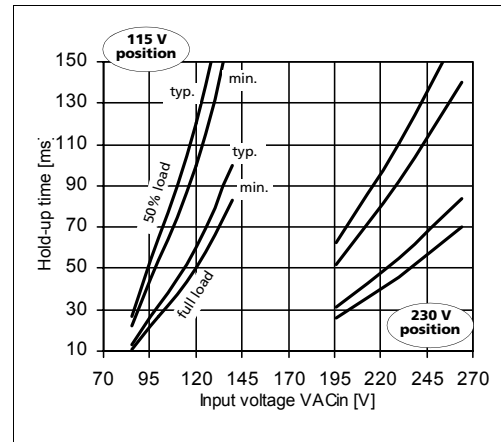
Operation without AS-Interface: This AS-Interface PSU has an inductive output. When operating without AS-Interface structure (e.g. in a laboratory test) you should connect a 470µF / 35V capacitor between AS-Interface + and AS-Interface - as commercial electronic loads in combination with the data decoupling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

Functional diagrams

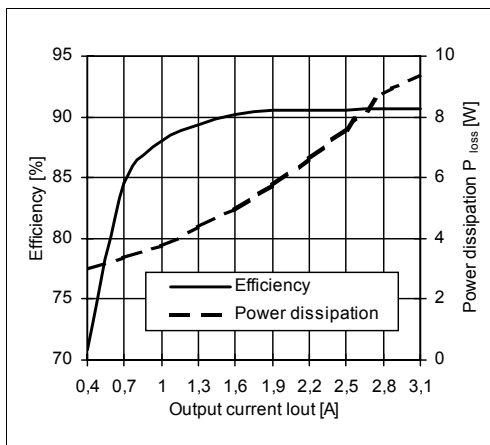
Start behaviour



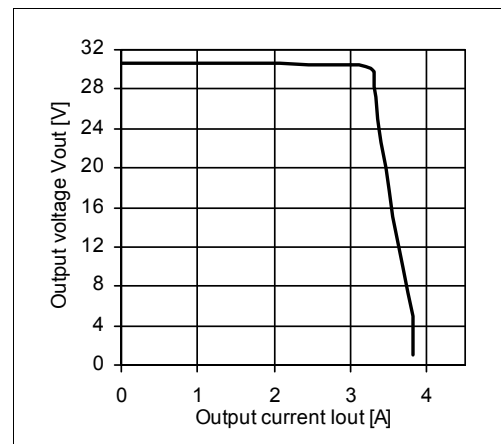
Hold-up time



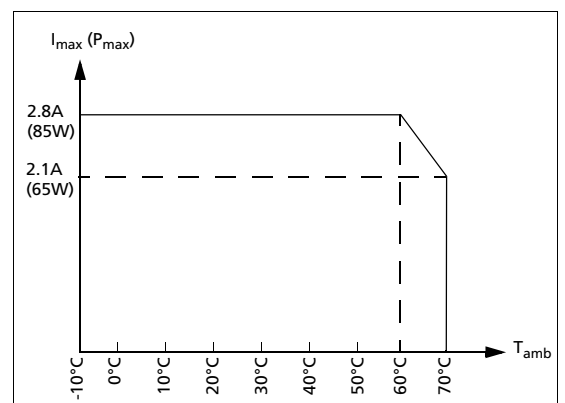
Efficiency / Power dissipation



Output characteristic / Overload behaviour



Derating



Unless otherwise stated, specifications are valid for AC 230V input voltage, +25°C ambient temperature, and 5 min. run-in time. They are subject to change without prior notice.

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