

• **Linear low noise version or high density switching power**  
 AC or DC input

• **Fully protected**  
 short-circuits, overload, thermal

• **1 to 8 isolated outputs**  
 Total independence of circuits

• **Long life version, extended temperature**  
 AL45DLL "long life" with polymer capacitors

• **Applications**  
 4...20 mA current loop power supply  
 with current limited (safety for measurement transmitters),  
 Hart protocol, very low noise.

• **SIL2 and SIL3 compliance** according to IEC 61508 (redundant version)



AL45D-DEC



AL45D-LIN

These supplies are available in 1 to 8 outputs and are particularly suitable for the implementation of converters in two wires technology (loop powered 4-20mA). The isolation between each output eliminates ground loop problems that may affect the measurement. Each output being independent and low power, the risk of damage to the material is discarded compared to the use of a single high output power supply. The independence of each loop greatly increases the reliability of the system. The outputs allow all wiring combinations to suit specific needs, their use in serial or parallel can achieve symmetric output, increase the output current or voltage.

**Description:**

- The switching version allow high power density without heating due to its high efficiency. It also adapts to a wide range of input voltage (AC or DC)

- The linear version is especially suitable for applications requiring a very stable output voltage and noise-free like the 4-20mA current loop with HART protocol.

**Specifications:**

- 1 to 8 isolated channels allowing serial or parallel coupling, thereby obtaining exotic or symmetric output voltages, or to increase the output current.
- typical 24 Vdc output voltage,
- Any output voltage available on request from 0 to 24Vdc and up to 192 volts by coupling,
- Continuous short-circuit protection,
- Overload protection,
- Thermal protection (output power limitation),
- Natural convection cooling,
- Build-in EMC filter in accordance with EN55022 class A,
- Regulated output voltage,
- Output protection with 24V transient voltage limiter.

**Feature:**

- DIN rail mounting, protection rating IP20,
- Conformal coating,
- Green LED for primary voltage presence,
- Wiring by pluggable screw terminals blocks (wire section up to 2.5 mm<sup>2</sup>).

**Implementation and installation recommendations:**

- primary protection with fuse recommended (delayed 2A),
- maintain a spacing of 2 mm for natural ventilation. (presence of separation pads on the case flanges)

**Operational safety data:**

type A components, HFT = 1

$\lambda_f$  : 265 fit (1/MTBF)

DC : tbd % (diagnostic coverage)

PFH : 1.8 fit (probability of dangerous failure per hour)

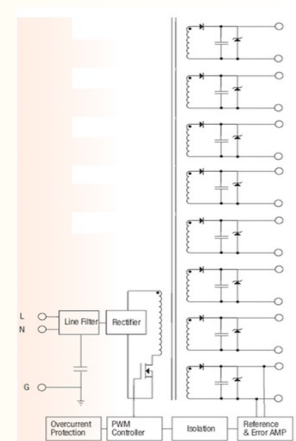
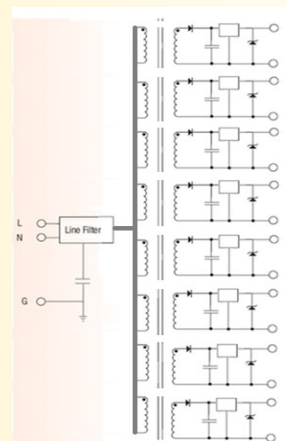
SFF : 99.4 % (Safe failure fraction)



**Synoptic**

linear version

SMPS version



**Version and order code:**

[Request a quote](#)

linear versions: (45 mm width)

**AL45D/Lin-n** : n : number of 24V 30mA outputs (up to 8)  
 230Vac or 115Vac input

**AL45DLL/Lin-n** : "Long Life" version. With polymer capacitors.  
 n : number of 24V 30mA outputs (up to 8)  
 230Vac or 115Vac input

**AL45DLL/Lin-8-RR1** : "Long Life" version for ROLLS ROYCE  
 8 outputs 24Vdc, 118Vac...136Vac 50/60Hz input  
 (106 Vac to 148Vac during 2sec)

Option : - **SIL2 / SIL3** ( up to 4 redundant outputs )

Switching version: ( 23 mm width )

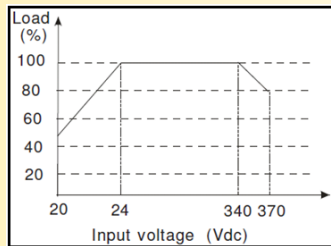
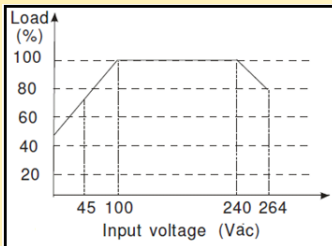
**AL45D/Dec-n** : n : number of 24V 30mA outputs (up to 8)  
 input 20...265 Vac-dc  
 others output voltage available on request

**SMPS version:**

Input voltage 45...265VAC / 20...370VDC  
 Input frequency 47...440Hz  
 Typical efficiency 85%  
 Inrush current 2A typical

**Power Supply**

Output power function of input voltage

**Linear version:**

Input voltage 230VAC or 115Vac +/-15%  
 Input frequency 45...65Hz  
 Consumption 1.15VA per output

**Outputs**

**SMPS version:**  
 Accuracy +/- 2% max. (no load)  
 Regulation - 5% max. (full load)  
 Ripple < 1% Vout max (limited to 20MHz)  
 Continuous short circuit protection, automatic restart.  
 Overload protection 110% typ.  
 Switching frequency 100kHz typ.  
 Output hold time 50 ms typ.

**Linear version:**

Voltage (standard) 24 Vdc (+/- 2 %)  
 Output current 30 mA max (at 24V)  
 the maximum power for an output is 1Watt  
 continuous short-circuit protected  
 Load influence 0.1 % max  
 noise < 20 mV peak to peak. (10 Hz ≤ f ≤ 100 kHz)

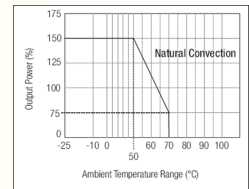
**ENVIRONMENT**

Operating temperature -25 °C to 60 °C  
 (natural convection cooling)  
 Thermal protection 100 °C internal  
 Temperature storage -25 °C to 105 °C  
 Humidity 85 % (not condensed)  
 Temperature coefficient < +/- 0.02%/°C (-2mV/°C typ.)  
 Insulation resistance 100 MΩ min.  
 Dielectric strength (input / output) 2500VAC  
 Impulse withstand voltage (1.2/50μs) 5000V peak  
 Dielectric strength (output / output) 1000VAC  
 Weight 100 g to 400 g model dependant  
 MTBF (MIL HDBK 217F) > 4 000 000 Hrs @ 25°C  
 MTBF (MIL HDBK 217F) > 1 500 000 Hrs @ 55°C  
 Lifetime (standard version) > 170 000 Hrs @ 30°C  
 Lifetime (standard version) > 45 000 Hrs @ 55°C  
 Lifetime ("long life" version) > 350 000 Hrs @ 30°C  
 Lifetime ("long life" version) > 170 000 Hrs @ 55°C

Shocks IEC 60068-2-27 (operating) 15 G / 11 ms  
 Bump IEC 60068-2-29 (transportation) 40 G / 6 ms  
 Vibrations IEC 60068-2-6 (operating) 1 G / 10 - 150 Hz  
 Vibrations IEC 60068-2-6 (transportation) 2 G / 10 - 150 Hz

Mounting recommendation:  
 Horizontal DIN rail mounting

Output power function of ambient temperature

**Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE**
**Immunity standard for industrial environments**  
**EN 61000-6-2**
**Emission standard for industrial environments**  
**EN 61000-6-4**

EN 61000-4-2 ESD	EN 61000-4-8 AC MF
EN 61000-4-3 RF	EN 61000-4-9 pulse MF
EN 61000-4-4 EFT	EN 61000-4-11 AC dips
EN 61000-4-5 CWG	EN 61000-4-12 ring wave
EN 61000-4-6 RF	EN 61000-4-29 DC dips

EN 55011  
 group 1  
 class A

**WIRING AND OUTLINE DIMENSIONS:**