Instrument power supplies with single or symmetrical isolated outputs for sensor or 4-20mA current loop

**AL35**

- **Linear or switched-mode version**
  - DC or AC 50Hz - 60Hz - 400Hz input

- **Fully protected**
  - short-circuits, overload, thermal
  - Limited output current for sensor safety

- **1 to 4 isolated outputs**
  - Fix or adjustable from 1V to 96V by coupling
  - single: 3v, 5v, 9v, 10v, 12v, 15v, 18v, 24v
  - symmetrical: +/- 5V, +/- 12V, +/- 15V, ...
  - Adjustable version from 1V to 24V

- **Applications**
  - 4..20 mA loop power supply, instrumentation, sensors,.....

These power supplies are available in 1 to 4 outputs and are suitable for the implementation of two wires technology converters (4-20mA current loop powered). The isolation between each outputs eliminates ground loop problems that may affect the measurement. Each output being independent and of 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 strongly increases the reliability of the system. The outputs allow all coupling to suit specific needs, their use in serial or parallel can achieve symmetrical output, increase the output current or voltage.

**Description:**
- The SMPS (switched-mode supply) 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 particularly suitable for applications requiring a very stable output voltage or noise-free.

**Specifications:**
- 1, 2, 3 or 4 isolated outputs allowing serial or parallel coupling, in order to obtaining exotic or symmetric output voltages, or to increase the available output current.
- Output voltage: 24 Vdc typical
- any output voltage available on request from 0 to 24Vdc and up to 96 volts by coupling
- permanent short circuits protection,
- overload protection,
- thermal protection (output power limitation),
- natural convection cooling,
- embedded EMC filter in accordance with EN55022 class A,
- regulated output voltage,
- output protection with 24V transient voltage limiter.

**Features:**
- DIN rail mounting,
- Protection rating IP20,
- Conformal coating,
- Green LED for main voltage presence,
- Connection by screw terminals, wire section up to 2.5 mm².

**Implementation and installation recommendations:**
- primary protection with fuse recommended (delayed 2A),
- maintain a spacing of 2 mm between devices for natural convection.

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**Version and order code:**

<table>
<thead>
<tr>
<th>Linear Version</th>
<th>Synoptic</th>
<th>SMPS Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL35Lin-x :</td>
<td></td>
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<tr>
<td>x : from 1 to 4 outputs</td>
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<tr>
<td>voltage output: 5v, 10v, 15v, 24v 30mA, 230Vac or 115Vac input</td>
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<tr>
<td>others output voltage on request (+/- 15V, ...)</td>
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</tbody>
</table>

**SMPS versions:**
- (23 mm width case)
  - AL35Dec-x : form 1 to 4 outputs
  - output 24V 30mA, wide input range 20...265 Vac-dc

**Hybrid versions:**
- (SMPS + linear regulation) : (35 mm width case)
  - AL35HYB-x : from 1 to 4 outputs
  - voltage output: 5V, 10V, 15V, 24V 50mA, wide input range 20...265Vac-dc
  - other output voltage on request (+/- 15V, ...) 

**Special versions:**
- (35 mm width case)
  - AL35adj : 2 adjustable outputs 1.2Vdc...24 Vdc, 30 mA.
  - Input: 230 Vac +/- 10 % standard
  - (any input voltage available from 11 to 265 Vac or dc)
  - AL35-200: 24 Vdc single output, 200 mA
  - Input: 230 Vac +/- 10 % standard
  - (any input voltage available from 11 to 265 Vac or dc)
Power Supply

**switched-mode (SMPS) version:**
- Input voltage: 45...265VAC / 20...370VDC
- Input frequency: 47...440Hz
- Typical efficiency: 85%
- Inrush current: 2A typical

Output power characteristics vs input voltage

**Linear version:**
- Input voltage: 230VAC or 115Vac +/-15%
- Input frequency: 45...65Hz

**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: Typical 50 ms.

Output power characteristics vs ambient temperature

**Linear version:**
- Voltage (standard): 24 Vdc (+/- 2 %)
- Output current: 30 mA max (at 24V)
- the output current is a function of the voltage
- the maximum power for each output is 1Watt

Load influence: 0.1 % max 0.001 % typ.
- noise: < 20 mV p. to p.
- Thermal drift: 1 mV / °C

Environment

- Operating temperature: -25 °C to 60 °C (natural convection)
- Thermal protection: 100°C internal
- Storage: -25 °C to 105 °C
- Humidity: 85 % (not condensed)
- Temperature coefficient: ±0.02%/°C typical
- Insulation resistance: 100 MΩ min.
- Dielectric strength: 2000VAC (input / output)
- Weight: 100g to 400 g model dependant
- MTBF SMPS version: > 1 000 000 hours @ 25°C
- MTBF linear version: > 4 000 000 hours @ 25°C
- Life time: > 200 000 hrs @ 25°C

EMC

- Immunity standard for industrial environments
  - EN 61000-4-2 ESD
  - EN 61000-4-3 RF
  - EN 61000-4-4 EFT
  - EN 61000-4-5 CW
  - EN 61000-4-6 RF

- Emission standard for industrial environments
  - EN 61000-6-1
  - EN 61000-6-2
  - EN 61000-6-3

- EN 61000-6-4

- EN 61000-6-5

- EN 61000-6-6

Wiring and Outline Dimensions:

On account of the constant technologies and standards evolution, LOREME keeps the possibility to modify the specifications of the included products without notice.