Technical Information

Easy Analog RNB130
Primary switched-mode power supply

Your benefits
- Small housing, 35 mm (1.38") width
- High availability
- Wide range input - can be used world-wide
- Power reserve (Power Boost)
- Power supply without wiring:
  Supply via DIN rail bus connector

Application
- Voltage supply for Easy Analog family units
- Space saving DIN rail mounting as per IEC 60715
- Voltage supply for sensors
## Function and system design

### Measuring principle

Primary switched-mode power supply  
Input: 100-240 V AC  
Output: 24 V DC connection, max. 30 V in the event of a fault  
Connection to monophased a.c. networks or to two phase conductors of three-phase supply networks (TN-, TT- or IT-networks as per VDE 0100 T 300/IEC 364-3) with 100-240 V AC nominal voltage

### Output

#### Output data

<table>
<thead>
<tr>
<th>Nominal output voltage $U_N$</th>
<th>24 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance</td>
<td>± 1%</td>
</tr>
</tbody>
</table>

**Output current during convection cooling and nominal values**

| POWER BOOST $I_{BOOST}$: 25 to +40 °C (-13 to +104 °F) | 2 A ($U_{OUT} = 24$ V) |
| Nennausgangsstrom $I_N$: 25 to +50 °C (-13 to 122 °F) | 1.5 A ($U_{OUT} = 24$ V) |

**Derating**

2.5% per K from +60 °C  
(1.4% per °F from +140 °F)

**Short-circuit current limit**

7 A

**Startup of capacitive loads**

unrestricted

**System deviation on**

Static load change 10-90%  
Dynamic load change 10-90%  
Input voltage change ± 10%

| typ. < 1% | typ. < 3% | typ. < 0.1% |

**Maximum power dissipation no load / nominal load**

2.5 W / 12 W

**Level of efficiency (typical)**

> 84% (at 230 V AC and at nominal values)

**Response time $U_{OUT}$ (10 - 90%)**

typ. < 2 ms

**Residual ripple/switching peaks (20 MHz)**

< 100 mV$_{peak}$ (at nominal values)

**Can be connected in parallel**

To increase redundancy and power

**Internal surge protection**

Yes, limited to 30 V DC, approximately

**Resistance to return supply**

30 V DC

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### Signal Output Data

DC OK (electrically isolated) $U_{OUT} > 2.15$ V DC @ contact closed: max. 30 V AC/DC; max. 1 A LED ($U_{OUT} > 2.15$ V DC @ green LED permanently on)
Power supply

**Electrical connection**

```
L  NC  N
```

Terminal assignment RNB130

**Supply voltage**
- Nominal input voltage: 100 - 240 V AC (wide-range voltage input)
- Input voltage range: 85 - 264 V AC
- Frequency: 45 - 65 Hz

**Current consumption (for nominal values)**
- Approximately 0.75 A (120 V AC)/0.45 A (230 V AC)

**Inrush current limiting/\(I^2t\)**
- Typ. \(\leq 15\) A / \(\leq 0.6\) A\(^2\)s

**Mains buffering for a nominal load (typical)**
- \(> 20\) ms (120 V AC) / \(> 110\) ms (230 V AC)

**Switch-on time after applying the mains voltage**
- \(< 0.5\) s

**Transient surge protection**
- Varistor

**Input fuse, internal**
- T3.15 AL250V (3.15 A) (device protection)

**Recommended fuse**
- 6 A, 10 A circuit breakers, characteristic B (IEC 60 898)
**Installation**

**Installation notes**
Horizontal installation (input terminals at bottom of unit) to NS 35 DIN rail as per IEC 60715.

Can be mounted with spacing:
- vertical ≥ 5 cm (2")
- horizontal 0 cm (0")

**Environment**

<table>
<thead>
<tr>
<th><strong>Ambient temperature limits</strong></th>
<th>-25 °C to +70 °C (-13 to +158 °F) (&gt; +60 °C / 140 °F Derating)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Storage temperature</strong></td>
<td>-40 °C to +85 °C (-40 to 185 °F)</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>up to 95% at +25 °C (77 °F), no condensation</td>
</tr>
<tr>
<td><strong>Climate class</strong></td>
<td>3K3 (as per IEC 60721)</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP20</td>
</tr>
<tr>
<td><strong>Protection class</strong></td>
<td>II (in closed control cabinets)</td>
</tr>
<tr>
<td><strong>Shock resistance</strong></td>
<td>as per IEC 68-2-27: 30 g, all space directions</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>as per IEC 68-2-6: &lt; 15 Hz, amplitude ±2.5 mm / 15 - 150 Hz, 2.3 g</td>
</tr>
</tbody>
</table>

**Electromagnetic compatibility (EMC)**
CE conformity
EMC to all relevant requirements of the IEC/EN 61000-6-series. For details, refer to the Declaration of Conformity.
Maximum fluctuations during EMC-tests: < 1% of measuring span.
Interference immunity to IEC/EN 61000-6-2, requirements for industrial areas
Interference emission to IEC/EN 61000-6-4, electrical equipment Class B
Mechanical construction

Design, dimensions

Dimensions RNB130

Weight
- approximately 0.25 kg

Material
- Housing: Polyamide PA

Connection data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor cross section solid min.</td>
<td>0.14 mm²</td>
</tr>
<tr>
<td>Conductor cross section solid max.</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Conductor cross section stranded min.</td>
<td>0.2 mm²</td>
</tr>
<tr>
<td>Conductor cross section stranded max.</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Conductor cross section AWG/kcmil min.</td>
<td>26</td>
</tr>
<tr>
<td>Conductor cross section AWG/kcmil max.</td>
<td>12</td>
</tr>
<tr>
<td>Stripping length</td>
<td>12 mm (0.47”)</td>
</tr>
<tr>
<td>Screw thread</td>
<td>M3</td>
</tr>
<tr>
<td>Connection type</td>
<td>Screw connection</td>
</tr>
</tbody>
</table>

Human interface

Display elements
- DC OK LED, green

Certificates and approvals

CE mark
- The device complies with the legal requirements of the EC directives. Endress+Hauser confirms that the device has been successfully tested by affixing to it the CE mark.
Other standards and guidelines

IEC 60529: Degrees of protection through housing (IP code)

IEC 61010: Protection measures for electrical equipment for measurement, control, regulation and laboratory procedures

EN 61000-6-2: Generic Standards - Immunity for Industrial Environments

EN 61000-6-4: Generic Standards - Emission standard for industrial environments

Ordering information

Detailed ordering information is available from the following sources:
- In the Product Configurator on the Endress+Hauser website: www.endress.com -> Click "Corporate" -> Select your country -> Click "Products" -> Select the product using the filters and search field -> Open product page -> The "Configure" button to the right of the product image opens the Product Configurator.
- From your Endress+Hauser Sales Center: www.addresses.endress.com

Product Configurator - the tool for individual product configuration
- Up-to-the configuration
- Depending on the device: Direct input of measuring point-specific information such as measuring range or operating language
- Automatic verification of exclusion criteria
- Automatic creation of the order code and its breakdown in PDF or Excel output format
- Ability to order directly in the Endress-Hauser Online Shop

Accessories

DIN rail bus connector
(order no. 51009864)

Mounting of the DIN rail bus connector

Documentation

- Technical Information RNB110, RNB111 and RNB112 (TI116R/09/en)
- Technical Information RNB127 and RNB128 (TI117R/09/en)
- Technical Information RNB150 (TI118R/09/en)
- Technical Information RNB140 (TI119R/09/en)
- Operating Instructions RNB130 (BA210R/09/b4)
- Brochure "System Components" (FA016K/09/en)