# Panel Meters and Controllers
# AC/DC Current and Voltage Meter/Controller
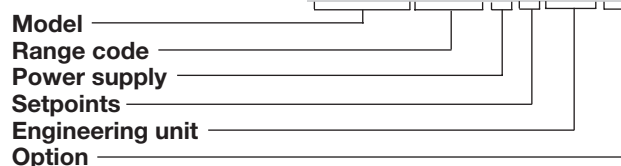# Type LDI35 AV2

**CARLO GAVAZZI**



- 3 1/2-dgt meter or 3-dgt + dummy zero
- For AC/DC current and voltage measurements
- Indicator or controller
- 200 VAC/DC, 500 VAC/DC and 2 AAC/DC, 5 AAC/DC
- All functions selectable by key-pad
- Password protection
- 48 x 96 mm
- Degree of protection: IP 50 (IP 65 on request)

## Product Description

3 1/2-dgt or 3-dgt + dummy zero multi-range µP-based indicator or controller for AC and DC current and voltage measurements. Selectable input range. Ensures a degree of protection (front) of IP 50 (IP 65 on request).

## Ordering Key

**LDI35AV2D0 XX XX**

Model ⎯⎯⎯⎯⎯⎯⎯⎯
Range code ⎯⎯⎯⎯⎯⎯
Power supply ⎯⎯⎯⎯⎯
Setpoints ⎯⎯⎯⎯⎯⎯⎯
Engineering unit ⎯⎯⎯
Option ⎯⎯⎯⎯⎯⎯⎯⎯⎯

## Type Selection

| Range code | Power supply | | Options | |
|---|---|---|---|---|
| See Range Table | **A:** 24 VAC, -15% +10%, 50/60 Hz [1] | **E:** 120 VAC, -15% +10%, 50/60 Hz [1] | **XX:** None (standard) | |
| | **B:** 48 VAC, -15% +10%, 50/60 Hz [1] | **F:** 240 VAC, -15% +10%, 50/60 Hz [1] | **IX:** Degree of protection IP 65 | |
| **Setpoints** | **C:** 115 VAC, -15% +10%, 50/60 Hz [1] | **3:** 9 to 32 VDC with galvanic insulation [1] | **AX:** Excitation output | |
| **0:** 0 setpoints | **D:** 230 VAC, -15% +10%, 50/60 Hz (standard) | **6:** 40 to 150 VDC with galvanic insulation [1] | **XT:** Tropicalization | |
| **1:** 1 setpoint [1] | | | [1] Power supply on request | |

## Input Specifications

| | | | |
|---|---|---|---|
| **Rated input** | | **AC Measurement** | Measurement of the average value resulting from the sine half-wave rectification of the input current/voltage by rms calibration |
| Current: | 2 AAC/DC, 5 AAC/DC, 40 to 400 Hz | | |
| Voltage: | 200 VAC/DC, 500 VAC/DC, 40 to 400 Hz | | |
| **Overload protection** | | **Sampling rate** | 4 times/s, dual slope 16 bits A/D converter |
| Continuous | 1.2 x rated input | | |
| For 1s | 2 x rated input | **Indication** | |
| **Accuracy** | | 3 1/2 dgt: | Max. 1999 (AC/DC) Min. -1999 (DC), 0 (AC) |
| DC: (@ 25°C ± 5°C, R.H. ≤ 60%) | ± 0.3% f.s., ± 1 dgt | 3 + 0 dgt: | Max. 9990 (AC/DC) Min. -1990 (DC), 0 (AC) |
| AC: (@ 25°C ± 5°C, R.H. ≤ 60%, 50/60 Hz, 5 to 100% f.s.) | ± 0.5% f.s., ± 1 dgt | **Key-pad** 3 keys: | |
| **Temperature drift** | ± 200 ppm/°C | | "S" for menu selection. "UP" and "DOWN" for value programming/function selection. |
| **Display** | 7-segment LED, h 14.2 mm, 3 1/2 digits or 3 digits + dummy zero selectable by means of the front key-pad | | |

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# Output Specifications

| | |
|---|---|
| **Excitation output** | |
| Voltage | 15 VDC non-stabilized/ 40 mA max. (on request) |
| Insulation | 100 V$_{rms}$ output to measuring input 4000 V$_{rms}$ output to AC supply input 500 V$_{rms}$ output to DC supply input |
| **Alarms** | |
| Number of setpoints | 0 (1 on request) |
| Alarm types | Over range, up alarm, down alarm, down alarm with disabling at power-on, up alarm with latch, down alarm with latch |
| Setpoint adjustment | 0 to 100% of the displayed range |
| Hysteresis | 0 to 100% of the displayed range |
| On-time delay | 0 to 255 s |
| Off-time delay | 0 to 255 s |
| Relay status | Normally energized/de-energized |
| Output type | |
|     Contact | 1 x SPDT |
|     Rating | 5A, 250 VAC/VDC 40 W/ 1200 VA, 130.000 cycles. |
| Min. response time | ≤ 500 ms, filter excluded, setpoint on-time delay: "0" |
| Insulation | 2000 V$_{rms}$ output to measuring inputs 2000 V$_{rms}$ output to excitation output |

# Supply Specifications

| | |
|---|---|
| **AC supply** | 230 VAC, -15% +10%, 50/60 Hz (standard) 24 VAC, 48 VAC, 115 VAC, 120 VAC, 240 VAC, -15% +10%, 50/60 Hz (on request) |
| Insulation | 4000 V$_{rms}$ supply input to all other inputs/outputs |
| **DC supply** | 9 to 32 VDC, G.I. max. inrush current: ≤ 1.2 A/200 ms 40 to 150 VDC, G.I., max. inrush current: ≤ 0.6 A/200 ms |
| Insulation | 500 V$_{rms}$ supply input to all other inputs/outputs |
| **Power consumption** | 6.5 VA |

# Software Functions

| | |
|---|---|
| **Password** | Numeric code of max. 3 digits; 2 protection levels of the programming data |
|   1st level | Password "0", no protection |
|   2nd level | Password from 1 to 255, all data protected |
| **Scaling factor** | |
|   Operating mode | Electrical scale compression, compression/expansion of the displayed scale (max. 2 without digital filter, > 2 with digital filter) |
|   Electrical scale | Programmable within the whole measuring range |
|   Decimal point position | Programmable within the displaying range |
|   Displayed scale | Programmable within the whole displaying range |
| **Diagnostics** | The display flashes when the limits of the displayed range are exceeded, the data are updated up to the maximum read-out |
|   Over range | EEE (AC/DC) |
|   Under range | - EE (DC) |
| **Filter** | |
|   Filter operating range | From 0 to 1999/9990 |
|   Filtering coefficient | From 1 to 255 |
| **Max. data hold** | Automatic storage (RAM only) of the max. value measured after the last reset |

# General Specifications

| | |
|---|---|
| **Operating temperature** | 0° to 50°C (32° to 122°F) (R.H. < 90% non-condensing) |
| **Storage temperature** | -10° to 60°C (14° to 140°F) (R.H. < 90% non-condensing) |
| **Insulation reference voltage** | 300 V$_{rms}$ to ground |
| **Dielectric strength** | 4000 V$_{rms}$ for 1 minute |
| **Noise rejection** | |
|   NMRR | 40 dB, 40 to 60 Hz |
|   CMRR | 100 dB, 40 to 60 Hz |
| **EMC** | IEC 60801-2, IEC 60801-3, IEC 60801-4 (level 3), EN 50 081-1, EN 50 082-1 |
| **Safety standards** | EN 61 010-1, IEC 61010-1, VDE 0411 |
| **Connector** | Screw-type |
| **Housing** | |
|   Dimensions | 1/8 DIN, 48 x 96 x 83 mm |
|   Material | ABS, self-extinguishing: UL 94 V-0 |
| **Degree of protection** | IP 50 (IP 65 on request) |
| **Weight** | 340 g approx. |
| **Approvals** | CE, CSA |

Specifications are subject to change without notice

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## Range Table

| Rated inputs | Ranges (3 1/2 dgt) | Impedances |
|---|---|---|
| 200 VDC | - 199.9 V to 199.9 VDC | ≥ 1 MΩ |
| 500 VDC | - 500 V to 500 VDC | ≥ 1 MΩ |
| 2 ADC | - 1.999 A to 1.999 ADC | ≤ 0.05 Ω |
| 5 ADC | - 5.00 A to 5.00 ADC | ≤ 0.05 Ω |
| 200 VAC | - 0 V to 199.9 VAC | ≥ 1 MΩ |
| 500 VAC | - 0 V to 500 VAC | ≥ 1 MΩ |
| 2 AAC | - 0 A to 1.999 AAC | ≤ 0.05 Ω |
| 5 AAC | - 0 A to 5.00 AAC | ≤ 0.05 Ω |

| Rated inputs | Ranges (3 + 0 dgt) | Impedances |
|---|---|---|
| 100 VDC | - 19.99 V to 99.90 VDC | ≥ 1 MΩ |
| 500 VDC | - 50.0 V to 500.0 VDC | ≥ 1 MΩ |
| 1 ADC | - 199.0 mA to 999.0 mA | ≤ 0.05 Ω |
| 5 ADC | - 1.99 A to 5.000 ADC | ≤ 0.05 Ω |
| 100 VAC | - 0 V to 99.90 VAC | ≥ 1 MΩ |
| 500 VAC | - 0 V to 500.0 VAC | ≥ 1 MΩ |
| 1 AAC | - 0 mA to 999.0 mAAC | ≤ 0.05 Ω |
| 5 AAC | - 0 A to 5.000 AAC | ≤ 0.05 Ω |

## Dimensions
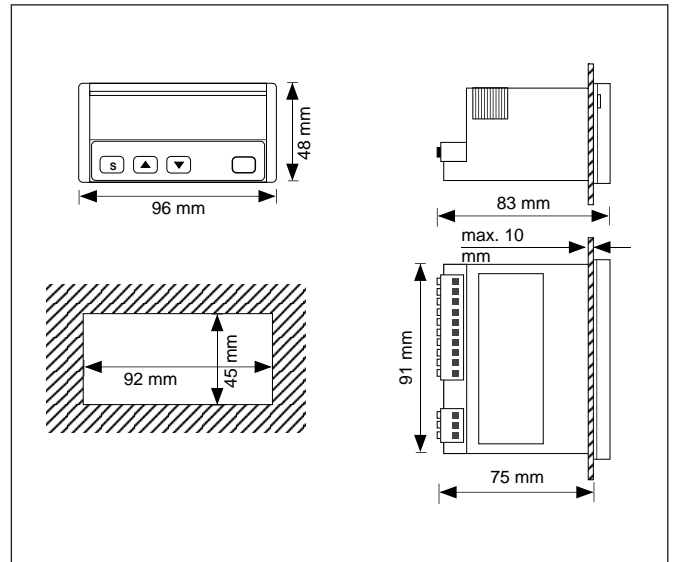


## Front Panel Description
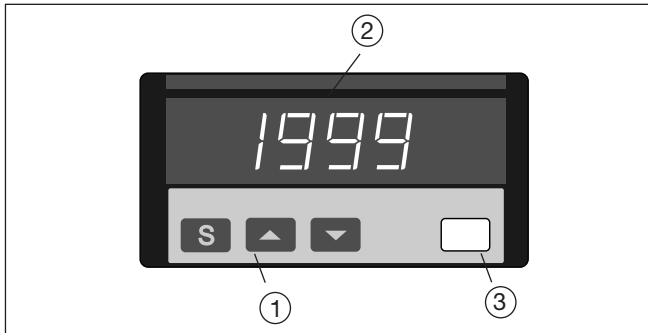


### 1. Key-pad
Set-up and programming procedures are easily controlled by the 3 pushbuttons.

"S"
- Selection key to select programming function (instrument configuration) or measurement and alarm detection.

" ▲ " and " ▼ "
- Up and down keys for increasing or decreasing programming values.

### 2. Display
3 1/2-digit or 3-digit + dummy zero (maximum read-out 1999/9990).

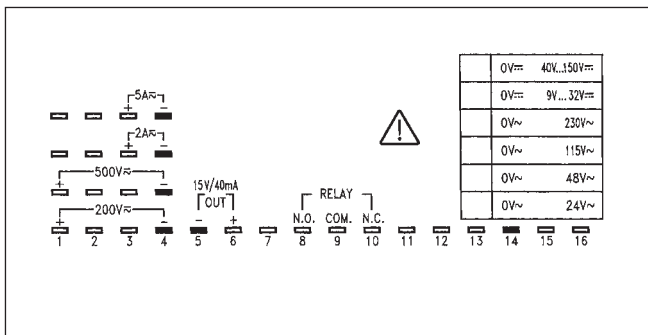Alphanumeric indication by means of 7-segment display for:
- Displaying of the measured value, over-range, burn-out and programming indications.
- Indication of programming parameters.
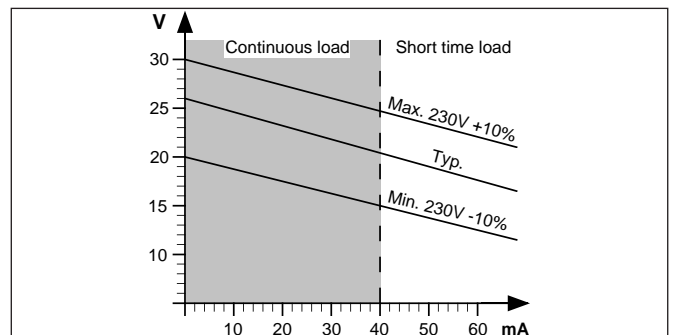
### 3. Engineering unit
Screen for interchangeable unit label. The symbols in the shaded areas are those available on the set of engineering unit labels supplied with the LDI35 (engineering unit label to be inserted by customer).

| | | | | |
|---|---|---|---|---|
| | W = 08 | MΩ = 16 | % = 24 | mm HG = 32 | cm = 40 |
| mV = 01 | kW = 09 | Hz = 17 | mbar = 25 | l/min = 33 | m = 41 |
| V = 02 | MW = 10 | kHz = 18 | bar = 26 | l/h = 34 | kg = 42 |
| kV = 03 | var = 11 | RPM = 19 | psi = 27 | kg/min = 35 | ppm = 43 |
| µA = 04 | kvar = 12 | m/s = 20 | ata = 28 | ton/h = 36 | kA = 44 |
| mA = 05 | Mvar = 13 | m/min = 21 | ate = 29 | m³/min = 37 | cos φ = 45 |
| A = 06 | Ω = 14 | °C = 22 | kg/cm² = 30 | m³/h = 38 | m³ = 46 |
| mW = 07 | kΩ = 15 | °F = 23 | mm H₂O = 31 | mm = 39 | µs = 47 |

## Terminal Board



## Excitation Output

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