

# Industrial Adapter

## 24V Series

### Single Output 230W PFC Data Sheet



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#### Description

This series is class 1, single-output AC to DC 230W green adapter with C14 inlet type. It can be operated from AC 90V~264V with good efficiency performance for various ITE, industrial and networking application. It also complies world-wide Safety and EMC regulations.

#### Features

- \* Full AC input voltage design with C14 socket
- \* Withstand 300Vac surge voltage for 5 seconds
- \* Full Protections: Short-circuit/ Over-voltage/ Over-current/ Over temperature operating.
- \* Energy efficiency level VI compliance
- \* IEC/EN 62368-1 design compliance
- \* Up to 5000 meters operating altitude (note #4)
- \* High reliability



#### Electrical Specification

| Model Name                          | HA-1231-24LC                       |
|-------------------------------------|------------------------------------|
| <b>Output</b>                       |                                    |
| Rated power                         | 230W                               |
| Rated voltage                       | 24V                                |
| Rated current                       | 9.6A                               |
| Ripple & Noise(max.) (note #2)      | 600mV                              |
| Line & load regulation              | ±5%                                |
| Hold-up time(typ.)                  | 16ms                               |
| Timing: AC ON delay / rising (max.) | 3 sec / 50ms                       |
| <b>Input</b>                        |                                    |
| Rated voltage range                 | 100~240Vac                         |
| Operated voltage range              | 90~264Vac, 300Vac for 5 sec        |
| Current range (max.)                | 3A/100Vac                          |
| Inrush current                      | No component damaged ( $<I^2*t$ ). |
| Frequency range                     | 50-60Hz                            |
| Leakage current (max.)              | 0.1mA at 240Vac                    |

|                            |  |
|----------------------------|--|
| Average efficiency (typ.)  | 90%  |
| <b>Protection Function</b> |  |
| Over voltage (max.)        | 150% of rated voltage, latch-off protection                                |
| Over current (max.)        | 170% of rated current, hiccup mode protection until fault is removed       |
| Short circuit at O/P       | No damage, hiccup mode protection until fault is removed                   |
| Over temperature           | No damage, auto recovery until temperature is back to normal               |
| <b>Others</b>              |  |
| MTBF (min.) (note#3)       | 500K hours @ rated load  |
| <b>Environment</b>         |  |
| Temperature (note#5)       | (operating) -20~70°C / (storage) -40~85°C                                  |
| Humidity                   | (operating) 10~90% RH non-condensing / (storage) 5~95% RH                  |
| Altitude (max.)            | 5000 meters  |
| <b>Mechanical</b>          |  |
| Dimension                  | 155(L)*75(W)*25.4(H) mm  |
| Vibration                  | 10~500 Hz, 5G 20min./1cycle per axis for all axes (X, Y, Z)                |
| Weight (typ.)              | 500g   |
| <b>Safety</b>              |  |
| Standard                   | CB/IEC62368-1,TUV62368-1,UL62368-1,EN62368-1,<br>CCC GB4943.1,PSE J62368-1 |
| Withstand voltage          | Input-Output: 4242VDC / Input-FG: 2150VDC                                  |
| Isolation resistance(min.) | Input-Output: 30Mohm @ 500VDC, 25°C, 70%RH                                 |
| <b>EMC</b>                 |  |
| EN55032 (CISPR32)          | Conducted EMI: class B / Radiated EMI: class B                             |
| FCC                        | Conducted EMI: class B / Radiated EMI: class B                             |
| EN61000-3-2                | Harmonic distortion: Class D   |
| EN61000-4-2                | ESD: ±8KV contact discharge / ±15KV contact discharge                      |
| EN61000-4-3                | Radiated RF immunity: 3V/m   |
| EN61000-4-4                | EFT: ±1KV (AC port)  |
| EN61000-4-5                | Surge: ±2KV DM / ±4KV CM   |
| EN61000-4-6                | Conducted RF immunity: 3V/m  |
| EN61000-4-8                | Magnetic field immunity: 3A/m  |
| EN61000-4-11               | Voltage dip immunity   |

## Notes

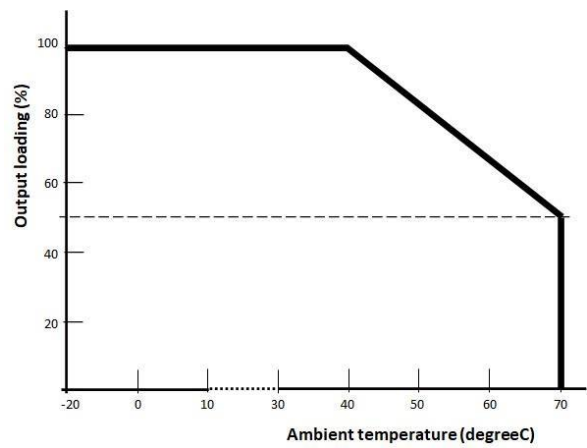
#1: All specification defined at 230Vac/50Hz, rated power and 25°C ambient temperature if not mentioned specifically.

#2: Ripple noise is measured with 0.47uF MLCC & 47uF low ESR capacitor.

#3: Calculated by Telcordia SR332 at 25°C ambient temperature.

#4: When operating altitude is higher than 2000m, the environment temperature derating factor is 0.36℃/100m.

#5: De-rating curve of ambient temperature:



Mechanical Specification

