# 65.17 W
# AC ADAPTER
# SPECIFICATION

| | | |
|---|---|---|
| **Model No.** | : | **ATS065T-P190 (Level VI)** |
| **Description** | : | **19.0Volts / 3.43Amps** |
| **Part No.** | : | **ATS065TP190Q15202** |
| **Version** | : | **A1** |
| **Date** | : | **16-Nov.-2022** |

| Approved | Reviewed | Checked | Prepared | Sales |
|---|---|---|---|---|
| | | | | |

# 1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.**
- ♦ **Output** ： **+19.0V / 0~3.43A**
- ♦ **Case Dimension** ： **115 (L) *53 (W) * 38 (H) mm**
- ♦ **Efficiency** ： **Eff (av) ≧ 88%**
- ♦ **Safety** ： **UL / cUL / GS / PSE / BSMI / CB / UKCA**
- ♦ **EMI** ： **CE / FCC (conduction & radiation Class B)**
- ♦ **Protection** ： **OVP (Over Voltage Protection)、SCP (Short Circuit Protection)、OCP (Over Current Protection)**
- ♦ **Suitable for usage at I.T.E., industrial controller**
- ♦ **Meet DoE Level VI/ ErP ( Lot 7 ) / GEMS / NRCan.**

# 2. Input：

| | |
|---|---|
| **2.1 Voltage** | **Universal 100~240Vac, single phase** |
| **2.2 Frequency** | **50 ~ 60 Hz** |
| **2.3 Current** | **1.4A Max.** |
| **2.4 Inrush Current** | **80A Max. / 240Vac(Cold start at 25 ºC，full load)<br>( ac source chroma 6530 )** |
| **2.5 Efficiency** | **Eff (av) ≧ 88% (At 115 Vac & 230 Vac)<br>Eff≧79%@10% load** |
| **2.6 Power Consumption** | **Pi ≦ 0. 21 W ( At 230Vac & No load)** |

**※Eff (av) =** $\frac{E_1 + E_2 + E_3 + E_4}{4}$ **E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load**

**E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load**

# 3. Output：

| | | |
|---|---|---|
| **3.1 DC Output** | **Voltage** | **+19.0 V ± 5%** |
| | **Current** | **3.43A Max.** |
| | **Regulation** | **18.05Vmin. ~ 19.00Vtyp. ~ 19.95Vmax.** |
| | **Ripple & Noise** | **190mV Max.** |
| | **Total Power** | **65.17 W Max.** |

**Remark：For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1μF multilayer Cap. and a Low ESR Electrolytic Cap. (47 μF ) at output connector terminals. (At nominal line voltage, full load)**

## 4. Protection :

| | |
|---|---|
| 4.1 Over Voltage Protection (OVP) | (V out *150%) Max., latch off. |
| 4.2 Short Circuit Protection (SCP) | Autorecovery |
| 4.3 Over Current Protection(OCP) | (I out *180%) Max., autorecovery |

## 5. Safety requirement：

5.1. Dielectric strength ： Cut off current 10mA

| | | |
|---|---|---|
| (1) | Primary to Secondary | 3000Vac for 1 Minute |
| (2) | Primary to Frame Ground | 1770Vac for 1 Minute |
| ※ Secondary return connected to FG | | |

5.2. Insulation resistance ：

| | | |
|---|---|---|
| (1) | Primary to Secondary | 10 M ohm for 500Vdc |
| (2) | Primary to Frame Ground | 10 M ohm for 500Vdc |
| ※ Secondary return connected to FG | | |

5.3 Leakage Current ： Less than 3.5mA

5.4 Grounding Test ： < 0.1Ω

## 6. Operation and Environment Performance：

6.1 Temperature Range

| | |
|---|---|
| Operating | - 20 ºC ~ + 40ºC |
| Storage | - 20 ºC ~ + 80ºC |

6.2 Humidity Range(Non-condensing)

| | |
|---|---|
| Operating | 20% ~ 80% RH |
| Storage | 10% ~ 90% RH |

6.3 Cooling：By natural air.

## 7. M.T.B.F.： 300,000 Hrs.(Calculated Hours At 25ºC，By Telcordia SR-332)

## 8.Mechanical :

**8.1 Weight : 310 Typical**

**8.2 Cable Type : Black UL1185 18AWG**

**( Wire + Plug )**

**Plug : ø5.5*ø1.7*12mm**

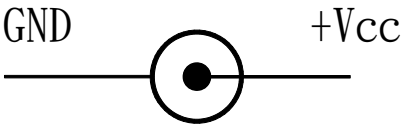
**( Tuning Fork & Cannelure )**

**8.3 Cable Length : 1500mm**

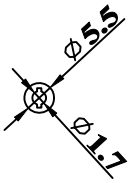
**8.4 Case Dimension : 115mm(L)*53mm(W)*38mm(H)**

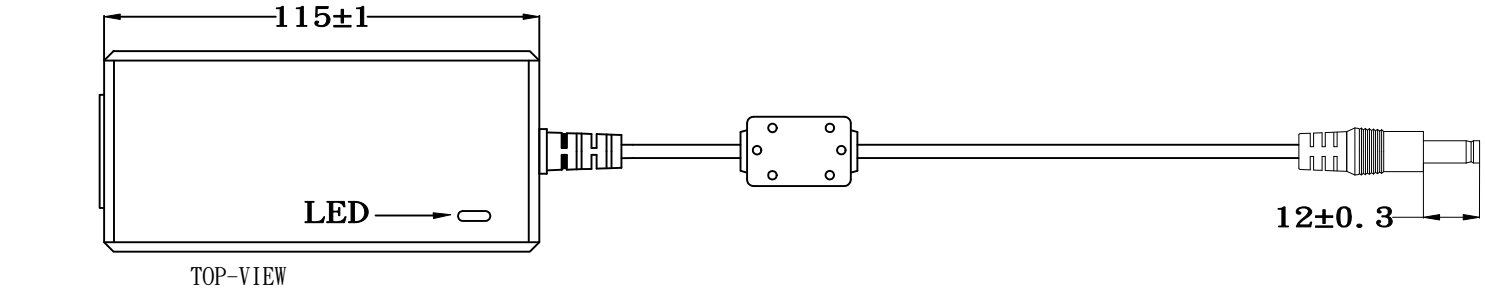
**8.5 Material Flammability : UL 94V-0**

**8.6 External Apperance : As drawing below ( Scale → mm )**

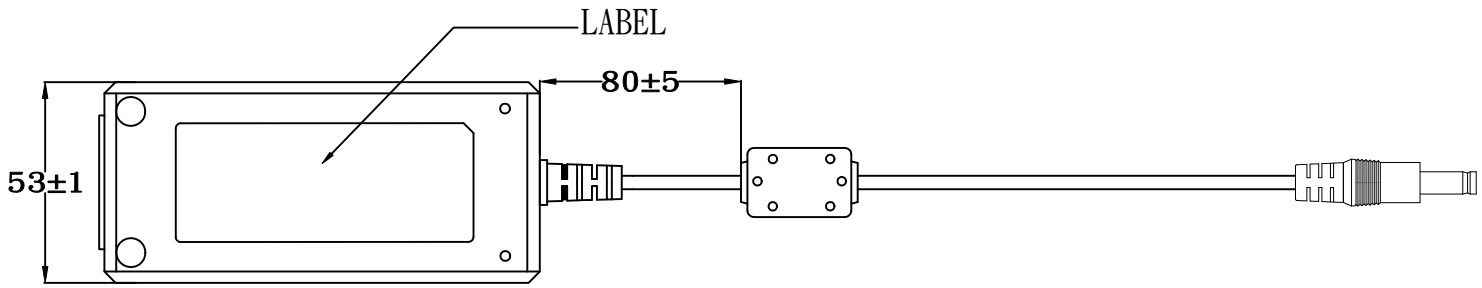



**Output Cable Plug Pin Assignment**

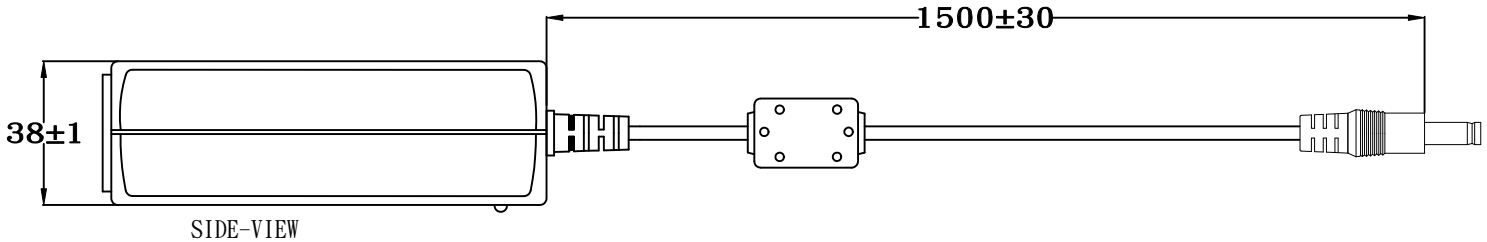


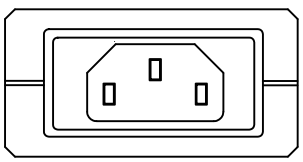

TOP-VIEW




BOTTOM-VIEW




SIDE-VIEW

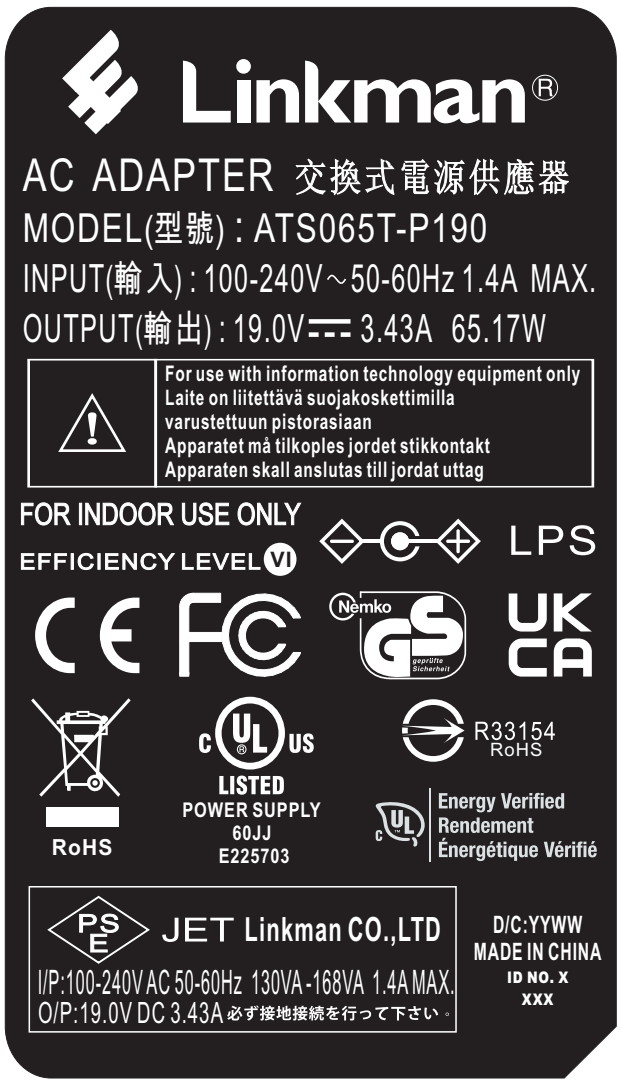


FRONT-VIEW

**8.7 Spec. Label Materials : Metalized Polyester Label ( Silver Gloss )**
**Color : Black Background with Silver Printing**
**Label Dimension : 70.8mm(L)*40.4mm(W)+/-0.2mm**
**Label Thickness : 75#**

100%


200%




# Label Part No.:9443126800
# REV.:A

## A. Line Regulation Test

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 90Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.24 V | 19.21 V | 19.20 V |
| 115Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.24 V | 19.21 V | 19.20 V |
| 132Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.24 V | 19.21 V | 19.20 V |
| 180Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.23 V | 19.21 V | 19.20 V |
| 230Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.23 V | 19.21 V | 19.20 V |
| 264Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.23 V | 19.21 V | 19.20 V |

## B. Efficiency Test

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 115Vac | 88 % Min. | 88.77 % | 88.62 % | 88.82 % |
| 230Vac | 88 % Min. | 89.38 % | 89.37 % | 89.42 % |
| 230Vac@10% load | 79 % Min. | 87.93 % | 87.95 % | 87.95 % |

$$Eff_{(av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

**E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load**

**E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load**

## C. Load Regulation Test

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 115Vac / 0 % Load | 18.05 V ~ 19.95 V | 19.42 V | 19.39 V | 19.38 V |
| 115Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.24 V | 19.21 V | 19.20 V |
| 115Vac / 100 % Load | 18.05 V ~ 19.95 V | 19.02 V | 19.00 V | 18.99 V |
| 230Vac / 0 % Load | 18.05 V ~ 19.95 V | 19.42 V | 19.39 V | 19.38 V |
| 230Vac / 50 % Load | 18.05 V ~ 19.95 V | 19.24 V | 19.21 V | 19.20 V |
| 230Vac / 100 % Load | 18.05 V ~ 19.95 V | 18.99 V | 18.97V | 18.96 V |

## D. Ripple & Noise Test

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 115Vac / 100 % Load | 190mV Max. | 54.6mV | 57.2mV | 60.2mV |
| 230Vac / 100 % Load | 190mV Max. | 36.4mV | 45.2mV | 48.5mV |

## E. Inrush Current

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 240Vac / 100 % Load | 80A Max | 63 A | 65 A | 64 A |

## F. Over Current Protection

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 115Vac / 100 % Load | (Iout *180%) Max. | 124 % | 126 % | 128 % |
| 230Vac / 100 % Load | (Iout *180%) Max. | 121 % | 122 % | 122 % |

## G. Short Circuit Protection

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 115Vac / 100 % Load | Auto Recovery | OK | OK | OK |
| 230Vac / 100 % Load | Auto Recovery | OK | OK | OK |

## H. Input Power Consumption(No Load)

**Test Result ：**

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---|---|---|---|---|
| 230Vac / 0 % Load | ≦ 0.21 W | 0.06 W | 0.07 W | 0.06 W |

# Efficiency Test Report

**A. Model Number : ATS065T-P190(19.0V/3.43A)**

**B. DC Power Cord : UL2468 , 20AWG ,1.5M**

**C. Efficiency :**

**LEVEL VI EFF(av)≧ 88%&Eff ≧ 79% @10% Load**

**D. NO Load Power Consumption :**

**LEVEL VI 0.21W max.**

**E. Testing Dequipment :**

**1. AC Power Source : " Chroma 61605**

**2. Electronic Load : " PRODIGIT " 3311F**

**3. Power Meter : "YOKOGAWA " WT310**

**4. Digital Meter : " FLUKE " 179**

**F. AC Input Voltage : 115Vac/60Hz**

| Load Conditions / Reported | 100%* $I_0$ | 75%* $I_0$ | 50%* $I_0$ | 25%* $I_0$ | 10%* $I_0$ | 0%* $I_0$ |
|---|---|---|---|---|---|---|
| Rms Output Current(mA) | 3430mA | 2573mA | 1715mA | 858mA | 343mA | 0mA |
| Rms Output Voltage(V) | 19.020V | 19.125V | 19.241V | 19.341V | 19.390V | 19.420V |
| Active Output Power(W) | 65.24W | 49.20W | 33.00W | 16.58W | 6.65W | 0.00W |
| Rms Input Voltage(V) | 115V | 115V | 115V | 115V | 115V | 115V |
| Rms Input Current(A) | 1.190A | 0.928A | 0.662A | 0.364A | 0.157A | 0.016A |
| Rms Input Power(W) | 74.72W | 55.59W | 36.92W | 18.45W | 7.48W | 0.05W |
| Total Harmonic Distortion of the input current | 162.00% | 177.50% | 194.32% | 217.72% | 239.97% | 154.21% |
| True Power Factor | 0.536 | 0.501 | 0.470 | 0.405 | 0.370 | 0.065 |
| Power Consumed by UUT(W) | 9.48W | 6.39W | 3.92W | 1.87W | 0.83W | 0.05W |
| Efficiency | 87.31% | 88.50% | 89.38% | 89.89% | 88.91% | * |
| Average Efficiency | 88.77% | | | | | * |

**G. AC Input Voltage : 230Vac/50Hz**

| Load Conditions / Reported | 100%* $I_0$ | 75%* $I_0$ | 50%* $I_0$ | 25%* $I_0$ | 10%* $I_0$ | 0%* $I_0$ |
|---|---|---|---|---|---|---|
| Rms Output Current(mA) | 3430mA | 2573mA | 1715mA | 858mA | 343mA | 0mA |
| Rms Output Voltage(V) | 18.991V | 19.111V | 19.225V | 19.333V | 19.380V | 19.420V |
| Active Output Power(W) | 65.14W | 49.16W | 32.97W | 16.58W | 6.65W | 0.00W |
| Rms Input Voltage(V) | 230V | 230V | 230V | 230V | 230V | 230V |
| Rms Input Current(A) | 0.743A | 0.551A | 0.382A | 0.202A | 0.082A | 0.024A |
| Rms Input Power(W) | 73.46W | 55.12W | 36.78W | 18.47W | 7.59W | 0.08W |
| Total Harmonic Distortion of the input current | 223.85% | 239.25% | 253.31% | 276.62% | 365.71% | 456.32% |
| True Power Factor | 0.419 | 0.411 | 0.393 | 0.367 | 0.337 | 0.022 |
| Power Consumed by UUT(W) | 8.32W | 5.96W | 3.81W | 1.89W | 0.94W | 0.06W |
| Efficiency | 88.71% | 89.24% | 89.71% | 89.89% | 87.93% | * |
| Average Efficiency | 89.38% | | | | | * |

**Tester :Sun**

## ATS065T Derating