# Specification for

# Model : DAU

Revised : Feb. 29. 2012
Original Release Date : Dec 27, 2011

# OPHIT

# Revision History

| Version Number | Revision Date | Author | Description of Changes |
|---|---|---|---|
| 1.0 | Dec. 27. 2011 | H.S.YANG | Initial Version |
| 1.1 | Feb. 27. 2012 | H.S.YANG | Support resolution Added |
| 1.2 | Feb. 29. 2012 | J.H LEE | Form, Case Dimension modified |
| | | | |
| | | | |

# TABLE OF CONTENTS

**1. General Description**

**2. General Specification**

**3. Absolute Maximum Ratings**

**4. Electrical Specification**

4.1 Input Video Signal Characteristics

4.2 Output Video Signal Characteristics

4.3 Power Management

**5. Connection and Pin Assignment**

5.1 DC Input jack

5.2 Analog RGB Input jack

5.3 Digital DVI-D input jack

5.4 Composite-Video Input jack

5.5 S-Video Input jack

5.6 Digital DVI-I Output jack

**6. Mechanical Specification**

6.1 Case Dimension

**7. RoHS**

## 1. General Description

**DAU**, OPHIT`s Universal DVI Converter (DAU), changes DVI, Analog RGB (VGA), S-Video, or Composite Video image signal to DVI signal.
It enables PC and notebook without DVI output to be connected easily to digital display devices such as LCD, PDP and Projector.

- Input : 1 VGA, 1 DVI, 1 S-Video, 1 Composite Video
- Output : 1 DVI
- Compatible with DVI standard by DDWG
- keys for choosing a desired resolution manually
- Output support resolution :
  XGA, SXGA, SXGA+, UXGA, WUXGA , 720p, 1080p, resolution fixed
- Input support resolution

**RGB(VGA) mode**

| | |
|---|---|
| 480i | 59.9Hz |
| 480P | 59.94Hz, 60Hz |
| 576i | 50Hz |
| 576P | 50Hz |
| 720P | 50Hz, 59.94Hz, 60Hz |
| 1080i | 25Hz, 29Hz, 30Hz |
| 1080P | 29.94Hz, 30Hz, 50Hz, 59.94Hz, 60Hz |
| VGA | 60Hz, 72Hz, 75Hz, 80Hz |
| SVGA | 56Hz, 60Hz, 72Hz, 75Hz, 85Hz |
| XGA | 60Hz, 70Hz, 75Hz, 85Hz |
| XGA+ | 75Hz |
| SXGA | 60Hz, 75Hz, 85Hz |
| UXGA | 60Hz |
| SXGA+ | 59.94Hz, 60Hz |
| WSXGA+ | 60Hz |
| WUXGA(RD) | 59.61Hz |

**DVI mode**

| | |
|---|---|
| 480i | 59.9Hz |
| 480P | 59.94Hz, 60Hz |
| 576i | 50Hz |
| 576P | 50Hz |
| 720P | 50Hz, 59.94Hz, 60Hz |
| 1080i | 25Hz, 29Hz, 30Hz |
| 1080P | 29.94Hz, 30Hz, 50Hz, 59.94Hz, 60Hz |
| VGA | 60Hz, 72Hz, 75Hz, 80Hz |
| SVGA | 56Hz, 60Hz, 72Hz, 75Hz, 85Hz |
| XGA | 60Hz, 70Hz, 75Hz, 85Hz |
| XGA+ | 75Hz |
| SXGA | 60Hz, 75Hz, 85Hz |
| UXGA | 60Hz |
| SXGA+ | 59.94Hz, 60Hz |
| WSXGA+ | 60Hz |
| WUXGA(RD) | 59.61Hz |

**S-Video mode**

| | |
|---|---|
| NTSC | 59.9Hz |
| PAL-N | 50 Hz |

**Composite Video mode**

| | |
|---|---|
| NTSC | 59.9Hz |
| PAL-N | 50 Hz |

## 2. General Specification

| Parameter | Symbol | Remarks |
|---|---|---|
| Input Signal | Analog RGB(VGA), DVI, Composite Video, S-Video | |
| Output Signal | DVI(Single link) | |
| Video Bandwidth | 1.65Gbps / Channel | |
| Dimension | 200 x 175 x 35 mm (W x D x H) | |
| Weight | 1400g | |
| Maximum Supported Resolution | PC : WUXGA(1920x1200)60Hz<br>HD : 1080P | |

## 3. Absolute Maximum Ratings

| Parameter | Rating |
|---|---|
| Storage temperature | -20°C ~ +70°C |
| Operating temperature | 0°C ~ +50°C |
| Power Supply | -0.3 ~ 12.5 V |
| Relative Humidity | 10 ~ 80 % |
| Lead-free solder temperature | 260°C, 10 seconds |

**NOTICE**

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

## 4. Electrical Specification

### 4.1 Input Video Signal Characteristics

| Input Signal | Description | Unit | Min | Typical | Max | Remarks |
|---|---|---|---|---|---|---|
| 15Pin D-Sub | Video(include SOG) | Vp-p | | 0.714(1.0) | | 75Ω Terminated |
| | Sync Voltage | Vp-p | | 5.0 | | |
| | Horizontal Frequency | kHz | 15 | - | 94 | Depends on Mode |
| | Vertical Frequency | Hz | 50 | 60 | 85 | Depends on Mode |
| DVI-D | Digital RGB | mVp-p | 150 | | 1560 | |
| | | mVdc | 150 | | 1560 | |
| | Dot Clock | MHz | 25 | | 165 | Depends on Mode |
| CVBS | Video + Sync | Vp-p | | 1.0 | | |
| S-VHS | LUMA Signal Input | Vp-p | 0.339 | | 0.961 | |
| | CHROMA Signal Input | Vp-p | 0.339 | | 0.961 | |

### 4.2 Output Video Signal Characteristics

| | Parameter | Symbol | Min | Typ | Max | Units | Condition |
|---|---|---|---|---|---|---|---|
| TMDS | Reference voltage for graphic signal | $V_{REF}$ | +3.1 | +3.3 | +3.5 | V | |
| | Single-ended high level input voltage | VH | $V_{REF}$ - 0.01 | | $V_{REF}$+0.01 | V | |
| | Single-ended low level input voltage | VL | $V_{REF}$ - 0.6 | | $V_{REF}$-0.4 | V | |
| | Single-ended input swing voltage | $V_{Iswing}$ | 0.4 | | 0.6 | V | |
| | Single-ended standby input voltage | | $V_{REF}$-0.01 | | $V_{REF}$+0.01 | V | |
| | Differential Input Clock Frequency | $F_{RXC}$ | | 225 | | MHz | |

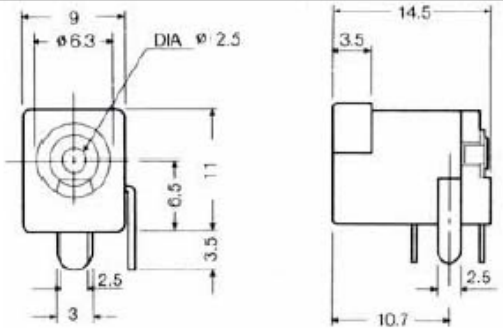
### 4.3 Power Management

| | Parameter | Symbol | Min | Typ | Max | Units | Condition |
|---|---|---|---|---|---|---|---|
| POWER | Supply Voltage | Vcc | | 12 | | V | |
| | Standby Power | | 0.2 | | 0.5 | A | No Input |
| | Supply Current | Icc | 0.8 | 0.9 | 1.0 | A | UXGA : Input(DVI)<br>WUXGA: Output |
| | Power Dissipation | Po | 9.6 | 10.8 | 12 | W | UXGA : Input(DVI)<br>WUXGA: Output |

## 5. Connection and Pin Assignment

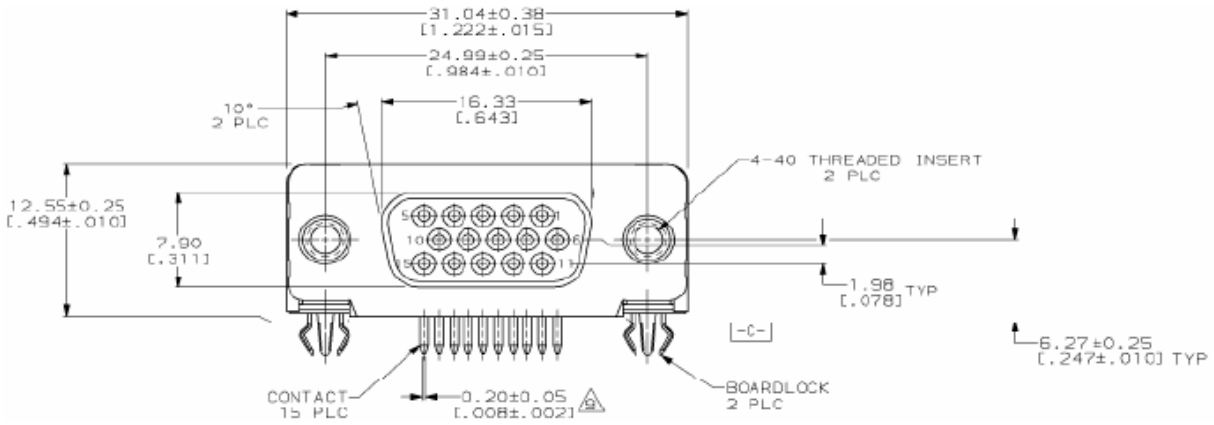
5.1 DC Input jack

| Type | Pin No. | Description | Remarks |
|---|---|---|---|
| Ø2.5 standard DC-jack | 1<br>2 | Vcc(12V, 18V, 24V)<br>GND | .Depend on Panel logic power and other situations.<br>.This jack will be installed when monitor have to use External AC adapter |



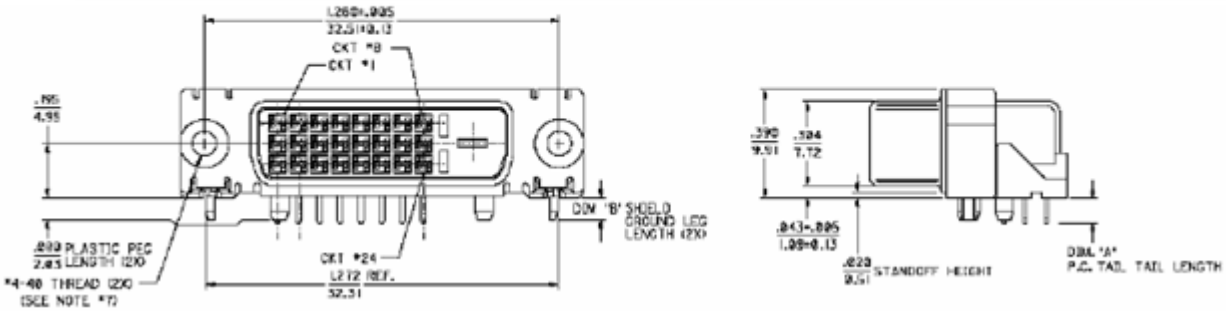

5.2 Analog RGB Input jack

| Type | Pin No. | Description | Remarks |
|---|---|---|---|
| Standard D-SUB 15pin jack | 1 | RED | |
| | 2 | GREEN | |
| | 3 | BLUE | |
| | 4 | GND | |
| | 5 | DDC 5V / Cable connection check | |
| | 6 | GND-RED | |
| | 7 | GND-GREEN | |
| | 8 | GND-BLUE | |
| | 9 | NC | |
| | 10 | GND-SYNC | |
| | 11 | GND | |
| | 12 | DDC DATA | |
| | 13 | HORIZONTAL SYNC | |
| | 14 | VERTICAL SYNC | |
| | 15 | DDC CLOCK | |



5.3 Digital DVI-D input jack

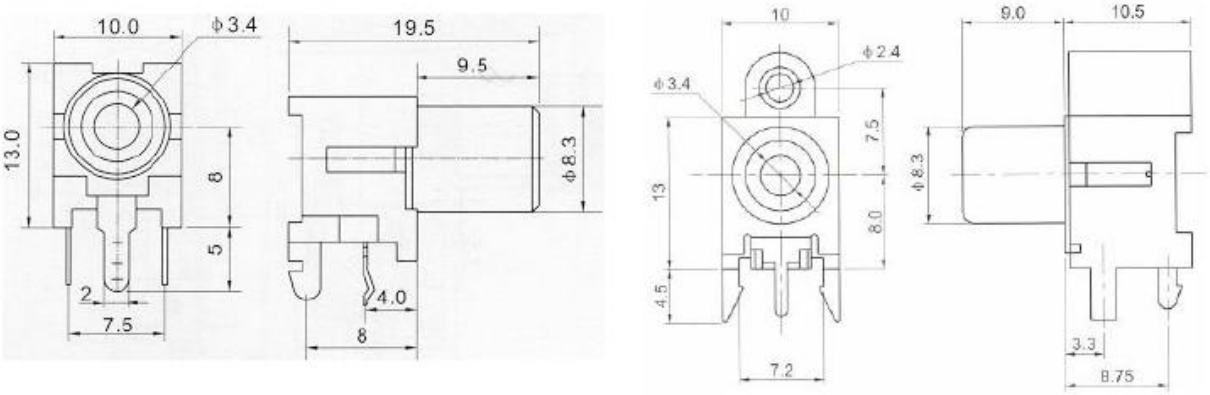
| Type | Pin No. | Description | Pin No. | Description |
|---|---|---|---|---|
| Standard DVI jack | 1 | TMDS DATA 2- | 13 | TMDS DATA 3+ |
| | 2 | TMDS DATA 2+ | 14 | +5V Power |
| | 3 | TMDS DATA2/4 SHILD | 15 | Cable connection check |
| | 4 | TMDS DATA4- | 16 | Hot Plug Detect |
| | 5 | TMDS DATA4+ | 17 | TMDS DATA 0- |
| | 6 | DDC_CLK | 18 | TMDS DATA 0+ |
| | 7 | DDC_DATA | 19 | TMDS DATA 0/5 SHILD |
| | 8 | NC | 20 | TMDS DATA 5- |
| | 9 | TMDS DATA1- | 21 | TMDS DATA 5+ |
| | 10 | TMDS DATA1+ | 22 | TMDS CLK_SHLD |
| | 11 | TMDS DATA1/3 SHILD | 23 | TMDS CLK + |
| | 12 | TMDS DATA 3- | 24 | TMDS CLK - |



5.4 Composite-Video Input jack

| Part No. | Pin No. | Description |
|---|---|---|
| Standard RCA jack | 1 | Composite Video |
| | 2 | GND |

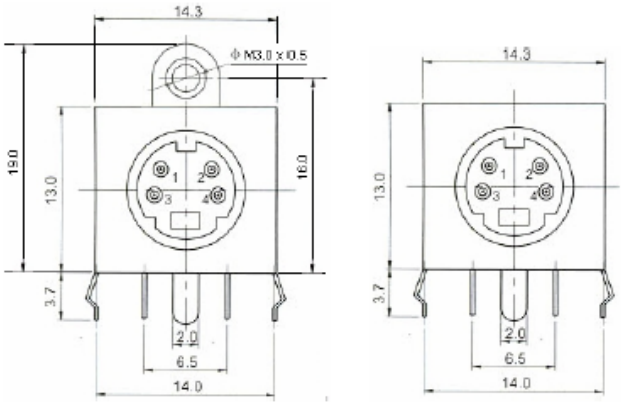
* Normal type and metal mount type available.



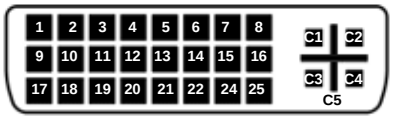
5.5 S-Video Input jack

| Part No. | Pin No. | Description |
|---|---|---|
| Standard Mini-Din jack | 1 | GND |
| | 2 | GND |
| | 3 | CHROMA |
| | 4 | LUMA |

* Normal type and metal mount type available.



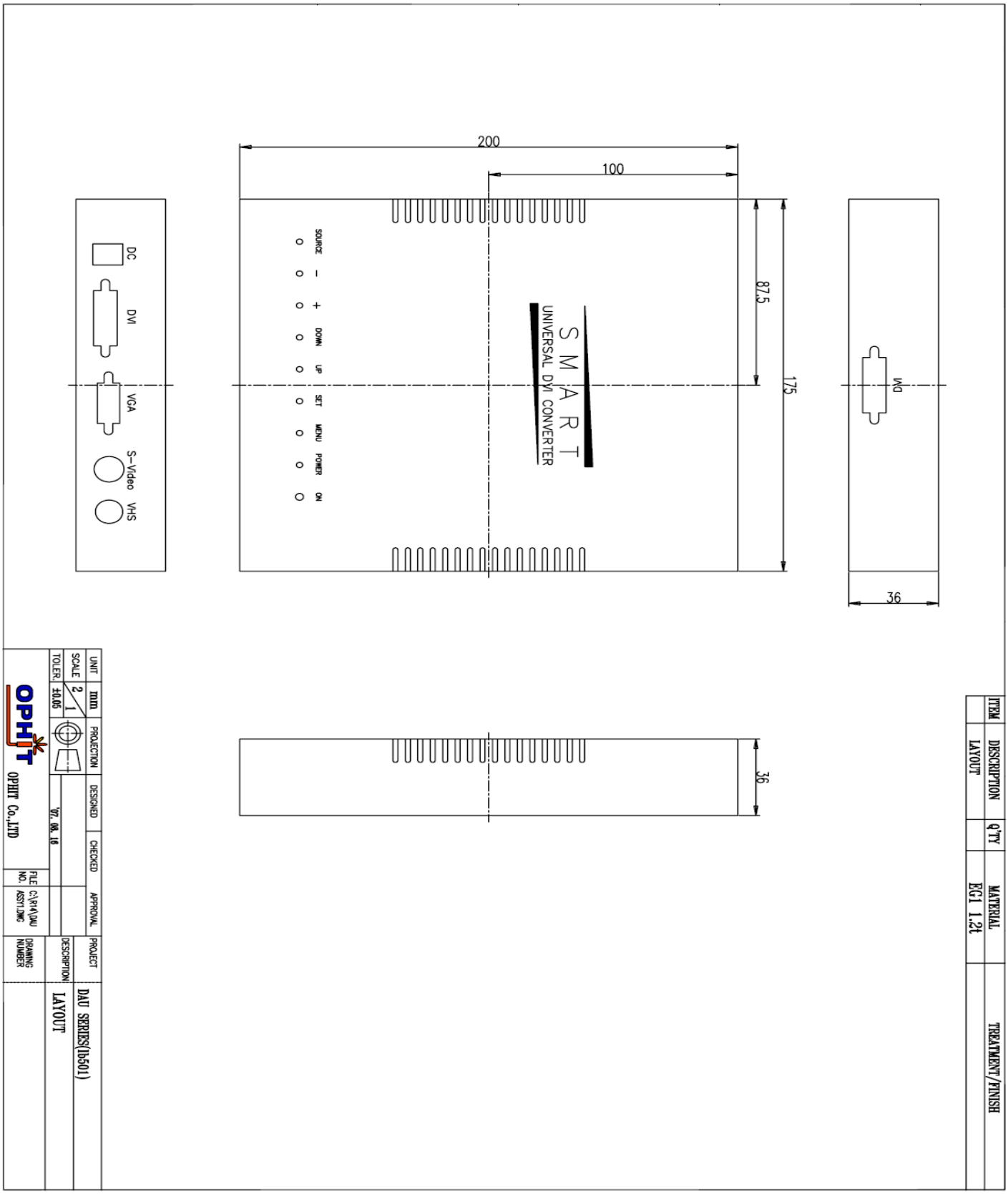

5.6 Digital DVI-I Output jack




| Pin | Signal Assignment | Pin | Signal Assignment | Pin | Signal Assignment |
|---|---|---|---|---|---|
| 1 | T.M.D.S. Data2- | 9 | T.M.D.S. Data1- | 17 | T.M.D.S. Data0- |
| 2 | T.M.D.S. Data2+ | 10 | T.M.D.S. Data1+ | 18 | T.M.D.S. Data0+ |
| 3 | T.M.D.S. Data2 Shield | 11 | T.M.D.S. Data1 Shield | 19 | T.M.D.S. Data0 Shield |
| 4 | No Connect | 12 | No Connect | 20 | No Connect |
| 5 | No Connect | 13 | No Connect | 21 | No Connect |
| 6 | DDC Clock | 14 | +5V Power | 22 | T.M.D.S Clock Shield |
| 7 | DDC Data | 15 | Ground (for +5V) | 23 | T.M.D.S Clock+ |
| 8 | No Connect | 16 | Hot Plug Detect | 24 | T.M.D.S Clock- |
| C1 | No Connect | C2 | No Connect | C3 | No Connect |
| C4 | No Connect | C5 | No Connect | | |

## 6. Mechanical Specification

6.1 Case Dimension



## 7. RoHS

# Certificate of Conformance RoHS

Dear Customer,

On January 27, 2003, the European Parliament and the Adminstrative Council adopted Directive 2002/95/EC (RoHS) that concerns the **"**Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment**"**.

The parts currently delivered by OPHIT **CO., LTD.** are already free of lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium ($Cr^{6+}$), polybrominated biphenyl (PBB) and polybrominated diphenyl (PBDE).

This Certification of Conformance is to certify that the products listed below comply with RoHS Directive mentioned above:

- DAU

If you have any further questions regarding the RoHS compliance of parts delivered by OPHIT **CO., LTD.**, please do not hesitate to contact us at **support@ophit.com**.

Best regards,

JONG-KOOK MOON/CEO

OPHIT CO., LTD.