

# Specification for

## Model : DDAP

Revised : March. 09. 2015  
Original Release Date : November 22, 2011

# OPHIT

## Revision History

| Version Number | Revision Date     | Author   | Description of Changes                     |
|----------------|-------------------|----------|--|
| 1.0            | November 22, 2011 | H.S YANG | Initial Version                            |
| 1.1            | May 14, 2012      | H.S YANG | The General Specification Modified         |
| 1.2            | July. 30. 2012    | J.H LEE  | Form Changed, Ordering Information Removed |
| 1.3            | August.13. 2012   | H.S YANG | VGA type modified                          |
| 1.4            | August. 27. 2012  | H.S YANG | Electrical Specification modified          |
| 1.5            | March. 09. 2015   | H.S YANG | Support Resolution update                  |

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## 1. General Description

**DDAP**, This unique DVI converter transports your PC's DVI signal to analog graphic signal so that analog display devices without DVI input can be connected to your PC and Laptop with DVI output easily and conveniently.

- Compliant with DVI standard by DDWG
- Compliant with HDCP 1.2 specification
- Compliant Analogue Video output up to 1920x1200@60Hz(Max)
- Support Separate Sync output and Sync On Green(option)
- Compact form 3" x 1.8" x0.8"(W x H x D)
- Simple EDID Internal Selection Function

## 2. General Specification

| Parameter                     |        | Symbol  |                                |
|-------------------------------|--------|---|--------------------------------|
| Input                         | Output | DVI   | VGA                            |
| Video Bandwidth(Input)        |        | 1.65 Gbps / Channel                                       |                                |
| Module Dimension              |        | 77(3)x 46(1.8) x 21(0.8) mm(inch) - (W x H x D)           |                                |
| Module Weight                 |        | 88g   |                                |
| In / Out Connector            |        | 24 pin DVI-I Type Plug(Female)                            | 15 pin VGA 15 pin Plug(Female) |
| Power                         |        | DC 5V   |                                |
| Compatibility                 |        | DVI 1.0, HDCP 1.2   |                                |
| Maximum Supporting Resolution |        | PC : WUXGA(1920x1200)60Hz<br>HD : 1080P(12bit Deep Color) |                                |

### 3. Absolute Maximum Ratings

| Parameter             | Symbol   | Minimum | Maximum | Units |
|-----------------------|----------|---------|---------|-------|
| Power Supply          | $V_{CC}$ | -0.3    | +5.5    | V     |
| Operating temperature | $V_{OT}$ | 0       | +50     | °C    |
| Storage temperature   | $V_{ST}$ | -20     | +70     | °C    |
| Relative Humidity     | $H_{RH}$ | 10      | 80      | RH    |

**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.

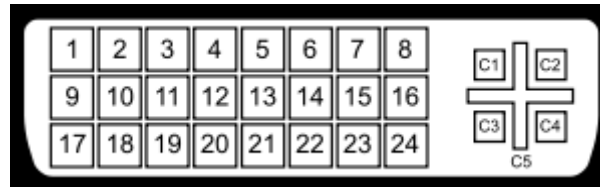
## 4. Electrical Specification

### 4.1 Electrical Specification

|                         | Parameter                                 | Symbol       | Min              | Typ  | Max              | Units | Condition |
|-------------------------|---|--------------|------------------|------|------------------|-------|-----------|
| <b>POWER</b>            | Supply Voltage<br>(Option External Power) | $V_{CC}$     | -                | 5.0  | 5.5              | V     |           |
|                         | Supply Current                            | $I_{CC}$     | -                | 330  | 360              | mA    |           |
|                         | Power Dissipation                         | $P_O$        | -                | 1.65 | 1.98             | W     |           |
| <b>TMDS<br/>(Input)</b> | Reference voltage for<br>graphic signal   | $V_{REF}$    | 3.1              | 3.3  | 3.5              | V     |           |
|                         | Single-ended high<br>level input voltage  | VH           | $V_{REF} - 0.01$ |      | $V_{REF} + 0.01$ | V     |           |
|                         | Single-ended low level<br>input voltage   | VL           | $V_{REF} - 0.6$  |      | $V_{REF} - 0.4$  | V     |           |
|                         | Single-ended input<br>swing voltage       | $V_{ISWING}$ | 0.4              |      | 0.6              | V     |           |
|                         | Single-ended standby<br>input voltage     |              | $V_{REF} - 0.01$ |      | $V_{REF} + 0.01$ | V     |           |

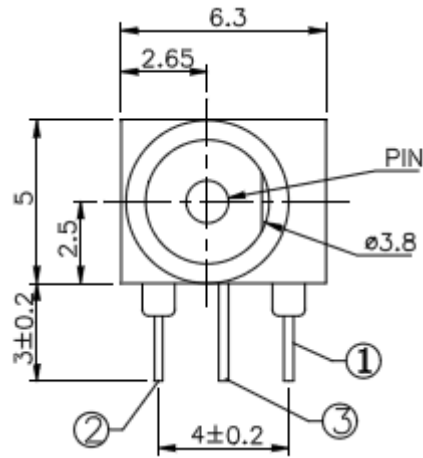
### 4.2 Connector Pin Assignment

#### 1) DVI Connector Pin Assignment( Input, Female)

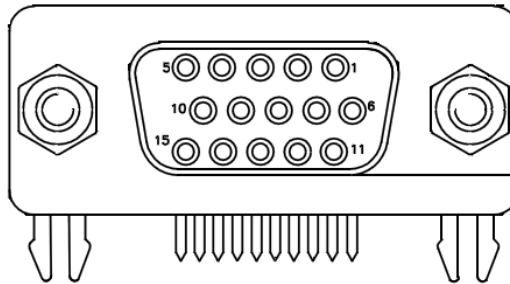


| Pin | Signal Assignment      | Pin | Signal Assignment      | Pin | Signal Assignment      |
|-----|------------------------|-----|------------------------|-----|------------------------|
| 1   | T.M.D.S. Data 2-       | 9   | T.M.D.S. Data 1-       | 17  | T.M.D.S. Data 0-       |
| 2   | T.M.D.S. Data 2+       | 10  | T.M.D.S. Data 1+       | 18  | T.M.D.S. Data 0+       |
| 3   | T.M.D.S. Data 2 Shield | 11  | T.M.D.S. Data 1 Shield | 19  | T.M.D.S. Data 0 Shield |
| 4   | Reserved               | 12  | Reserved               | 20  | Reserved               |
| 5   | Reserved               | 13  | Reserved               | 21  | Reserved               |
| 6   | DDC Clock(SCL)         | 14  | +5V Power(Input)       | 22  | Reserved               |
| 7   | DDC Data(SDA)          | 15  | Ground(for +5V)        | 23  | T.M.D.S. Clock +       |
| 8   | Reserved               | 16  | Hot Plug Detect        | 24  | T.M.D.S. Clock -       |

2) Power Connector( Input, Female)



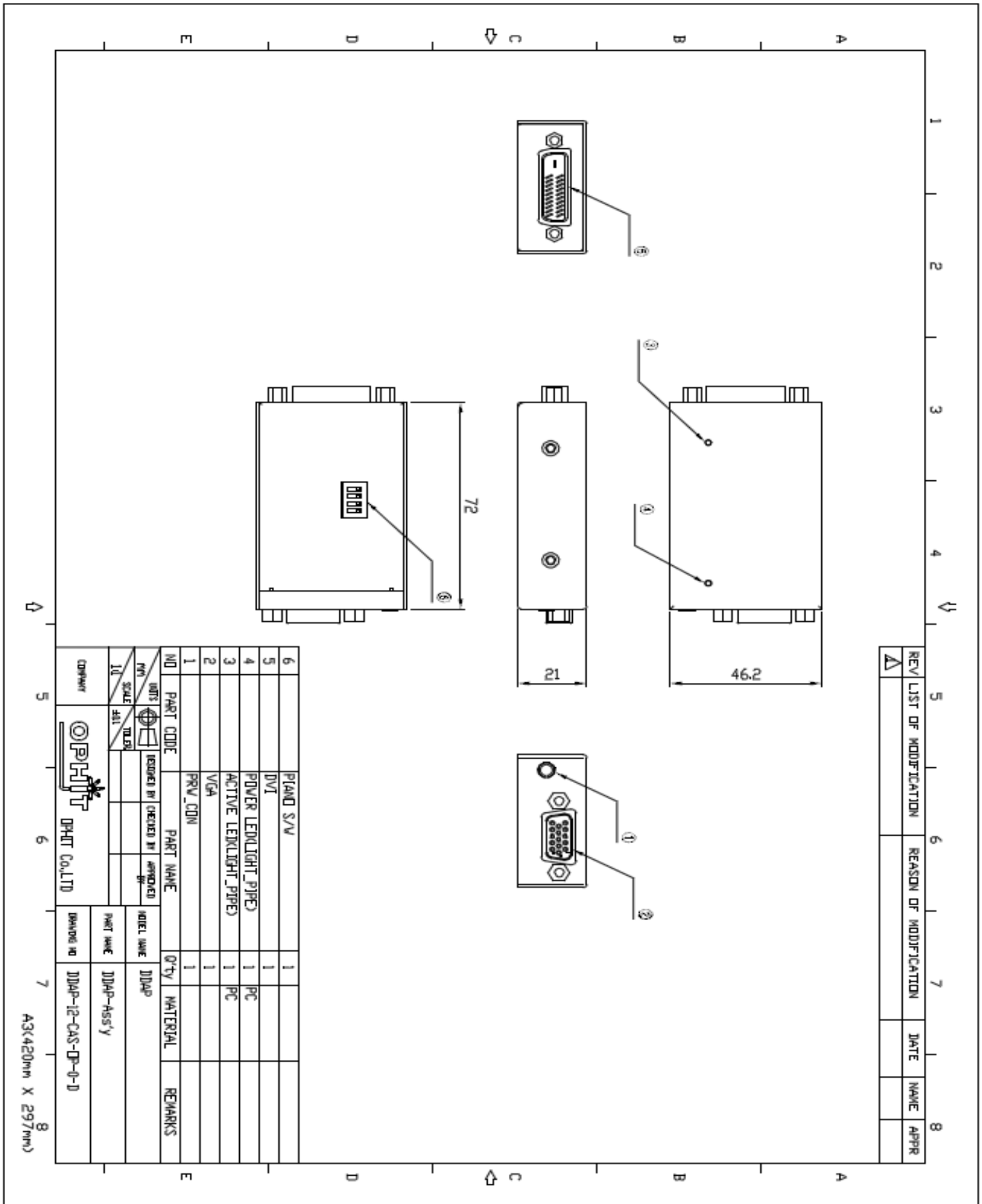
3) VGA Connector Pin Assignment( Output, Female)



| Pin | Signal Assignment | Pin | Signal Assignment |
|-----|-------------------|-----|-------------------|
| 1   | RED               | 9   | Reserved          |
| 2   | GREEN             | 10  | Sync Ground       |
| 3   | Reserved          | 11  | Reserved          |
| 4   | BLUE              | 12  | DDC Data (SDA)    |
| 5   | Ground            | 13  | Horizontal Sync   |
| 6   | RED Ground        | 14  | Vertical Sync     |
| 7   | GREEN Ground      | 15  | DDC Clock (SCL)   |
| 8   | BLUE Ground       |     |                   |

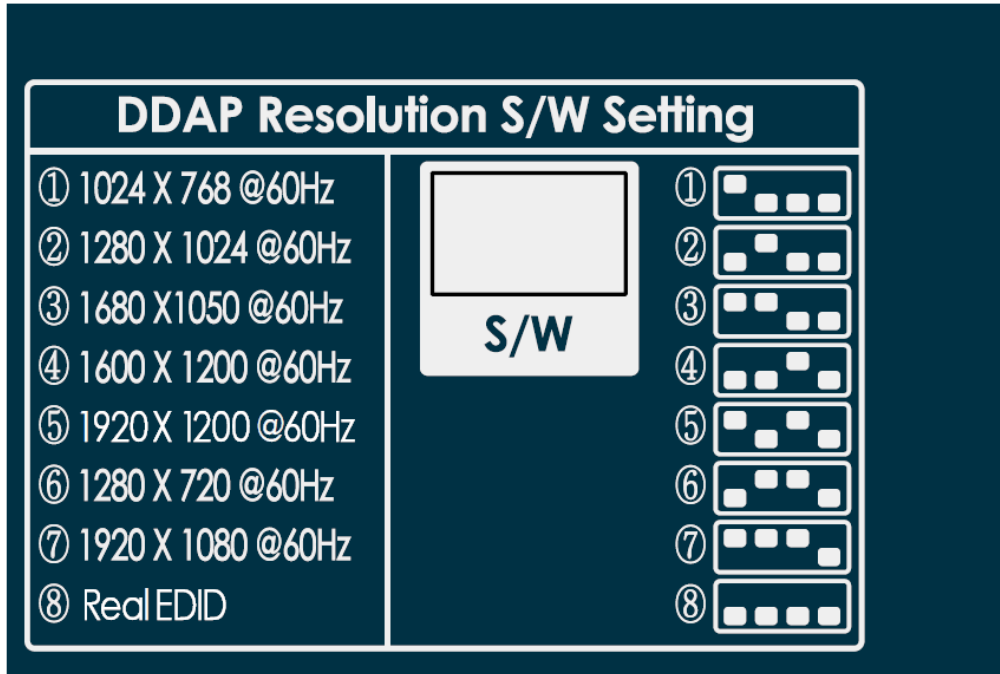
## 5. Mechanical Specification

### 5.1 Case Dimension





## 6. EDID Internal Selection Function



### Etc. mode description

On etc mode, DDAP reads analog EDID from VGA cable and configures data into Digital EDID to provide data to DVI connector. Simply, you can see it as auto EDID mode.

### How to use Etc. Mode

1. Connect DDAP and display via VGA cable.
2. Connect DDAP and Source device via DVI cable.
3. Plug power to DDAP, DDAP processes EDID automatically when power is supplied.
4. If source data is shown normally on display then EDID function is working normally.

## 7. RoHS

### Certificate of Conformance RoHS

Dear Customer,

On January 27, 2003, the European Parliament and the Administrative 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<sup>6+</sup>), 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:

- DDAP

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](mailto:support@ophit.com).

Best regards,

JONG-KOOK MOON/CEO

OPHIT CO., LTD.