

PRODUCT DATA SHEET

DAU

UNIVERSAL CONVERTER



Revision History

Version Number	Revision Date	Page	Description of Changes
1.0	Dec.27.2011	ALL	Initial Version
1.1	Feb.27.2012	4, 5	Support resolution Added
1.2	Feb.29.2012	11	Form, Case Dimension modified
1.3	Nov.05.2019	ALL	Renewal Specification

PROPRIETARY NOTE

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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

2.1 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	1200g	
Maximum Supported Resolution	PC : WUXGA(1920x1200)60Hz HD : 1080P	

3. Absolute Maximum Ratings

Parameter	Rating
Storage temperature	-20°C ~ +70°C Non-Condensing
Operating temperature	0°C ~ +50°C Non-Condensing
Transportation temperature	-20°C ~ +70°C Non-Condensing
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. This is a stress rating 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
T M D S	Reference voltage for graphic signal	V_{REF}	+3.1	+3.3	+3.5	V	
	Single-ended high level input voltage	V_H	$V_{REF} - 0.01$		$V_{REF} + 0.01$	V	
	Single-ended low level input voltage	V_L	$V_{REF} - 0.6$		$V_{REF} - 0.4$	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

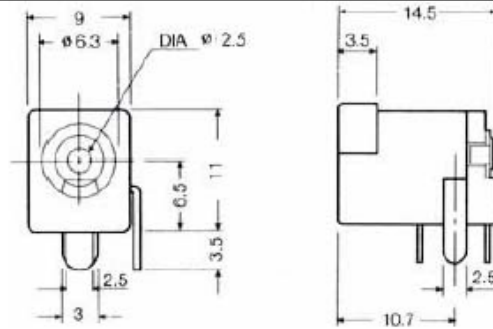
4.3 Power Management

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage	V_{cc}		12		V	
	Standby Power		0.2		0.5	A	No Input
	Supply Current	I_{cc}	0.8	0.9	1.0	A	UXGA : Input(DVI) WUXGA: Output
	Power Dissipation	P_o	9.6	10.8	12	W	UXGA : Input(DVI) WUXGA: Output

5. Connection and Pin Assignment

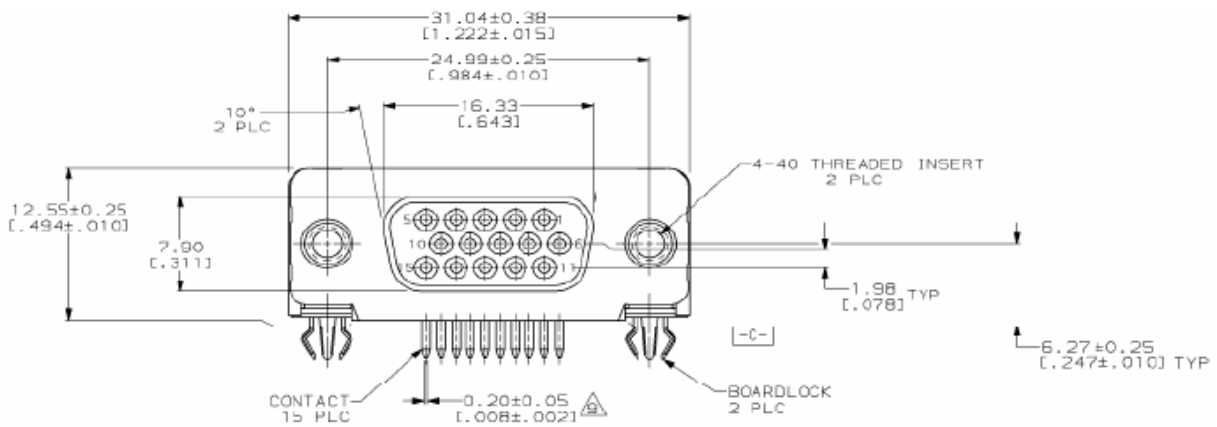
5.1 DC Input jack

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



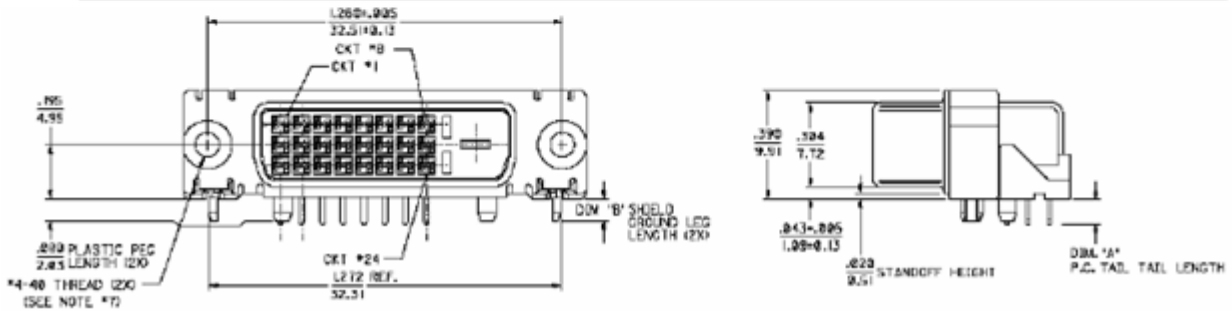
5.2 Analog RGB Input jack

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

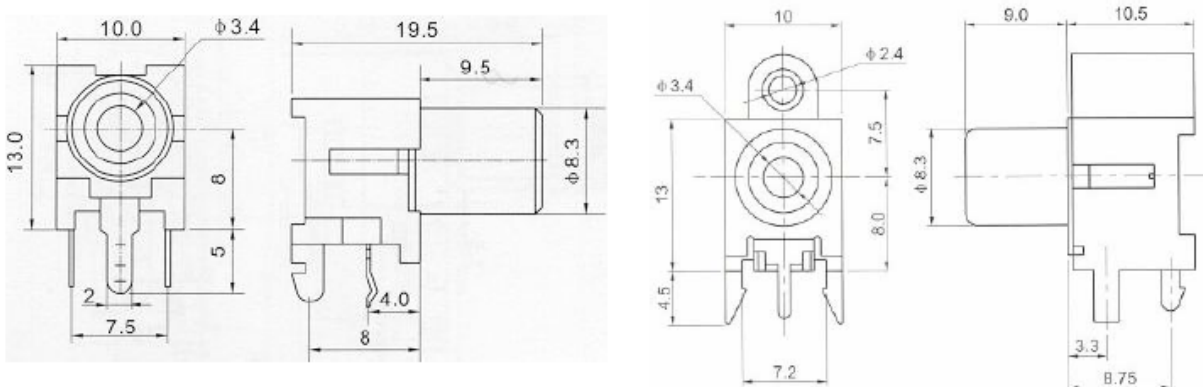
Type	Pin No.	Description	Pin No.	Description
Standard DVI jack	1	TMDS DATA 2-	13	TMDS DATA 3+
	2	TMDS DATA 2+	14	+5V Power
	3	TMDS DATA2/4 SHILD	15	Cable connection check
	4	TMDS DATA4-	16	Hot Plug Detect
	5	TMDS DATA4+	17	TMDS DATA 0-
	6	DDC_CLK	18	TMDS DATA 0+
	7	DDC_DATA	19	TMDS DATA 0/5 SHILD
	8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

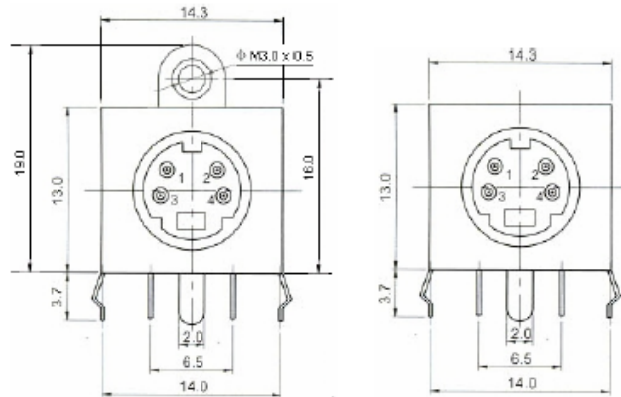
* Normal type and metal mount type available.



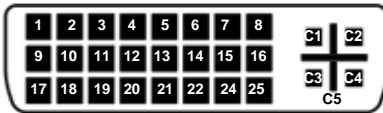
5.5 S-Video Input jack

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

* Normal type and metal mount type available.



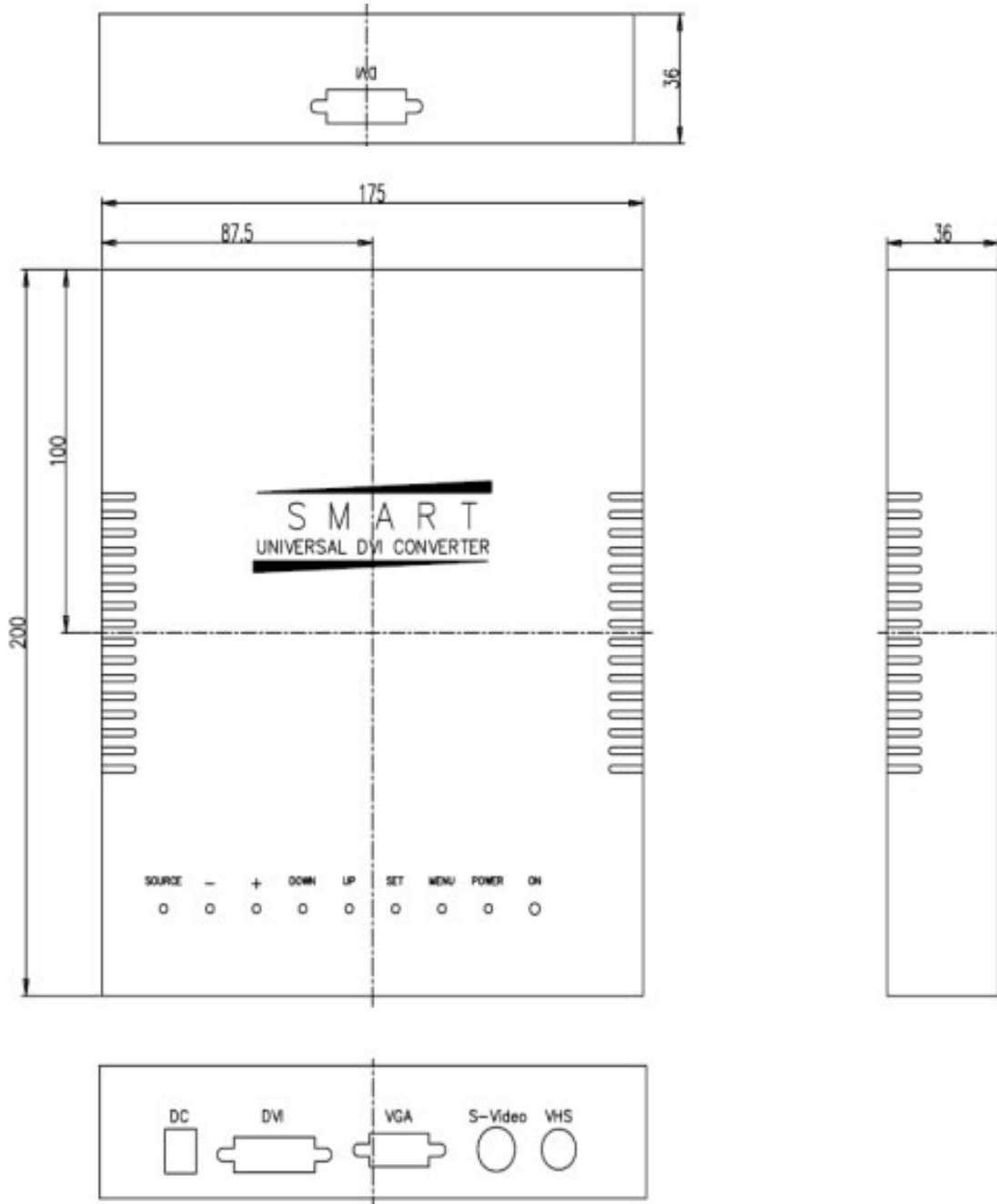
5.6 Digital DVI-I Output jack



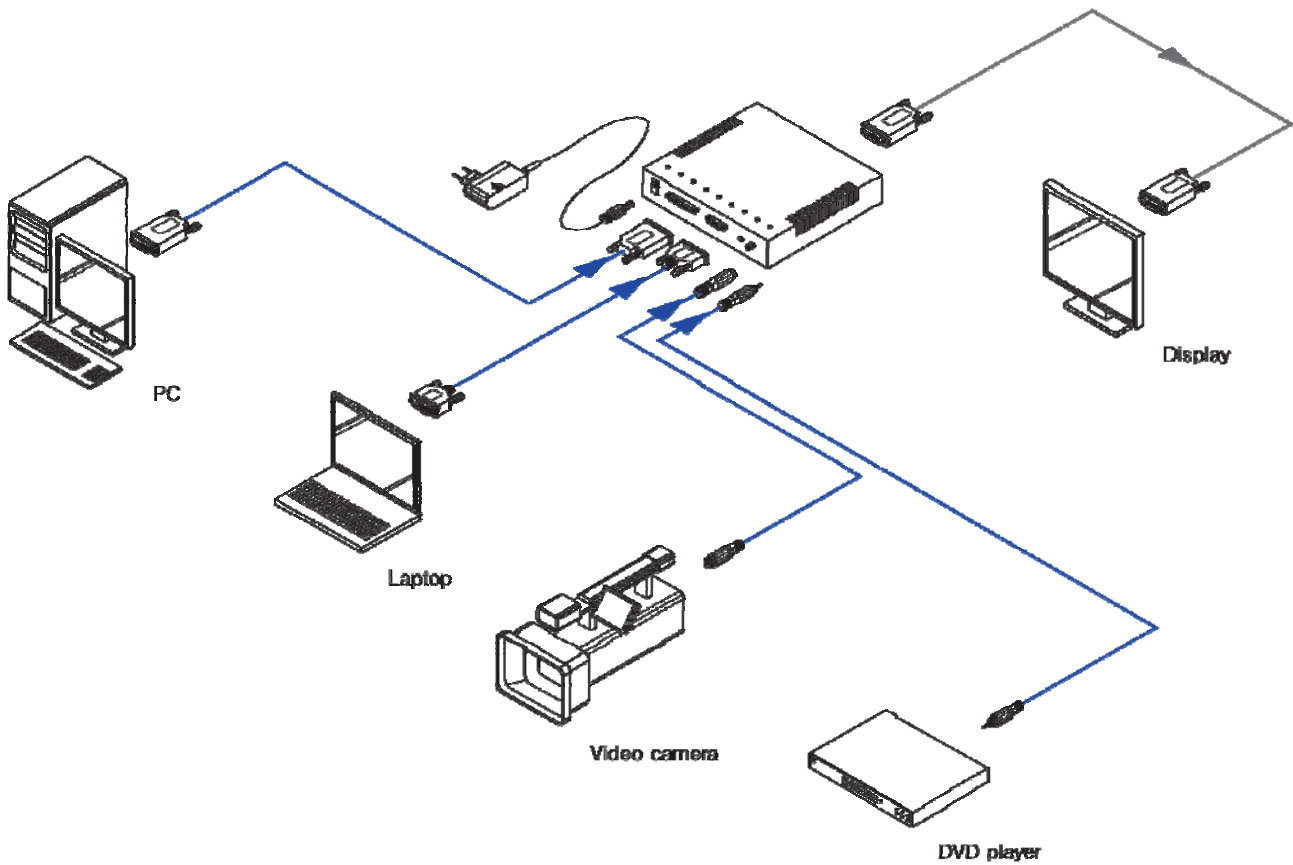
Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2 Shield	11	T.M.D.S. Data1 Shield	19	T.M.D.S. Data0 Shield
4	No Connect	12	No Connect	20	No Connect
5	No Connect	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



6.2 Connection



7. Regulatory

7.1 EMC & Safety Agency approval

7.1.1 CE-EMC compliance:

This Product is investigated to EN55022:2006, EN55024:1998+A1:2001+A2:2003, EN61000-3-2:2006 and EN61000-3-3:1995+A1:2001+A2:2005

7.1.2 FCC compliance:

This Product is investigated to FCC 47CFR part 2 and part 15

8. Packing Information

Set(Unpacking, DAU Only)	200.0mm*175.0mm*35.0mm	1.2Kg
Package(1Set, Inner Box Packing)	302.0mm*310.0mm*62.0mm	2.1Kg
Package(Multi, 8PCS Packing)	590.0mm*340.0mm*335.0mm	18.0Kg

9. RoHS

OPHIT is fully aware of the requirement under the **Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive EU 2015/863(RoHS3)**, which adds four new restricted substances to the previous Directive 2011/65/EU(RoHS2).

Hereby we guarantee that we do not intentionally use the substances described below and based on third party chemical analysis the thresholds of the substances as indicated are not exceeded for our all products.

Substance	CAS #	RoHS Limity by % (PPM)
Lead (PB)	7439-92-1	0.1% (1000 PPM)
Mercury (Hg)	7439-97-6	0.1% (1000 PPM)
Hexavalent Chromium (CrVI)	15840-29-9	0.1% (1000 PPM)
Polybrominated Biphenyls (PBB)	-	0.1% (1000 PPM)
Polybrominated Diphenyl Ethers (PBDE)	-	0.1% (1000 PPM)
Cadmium (Cd)	7440-43-9	0.01% (100 PPM)
Bis(2-Ethylhexyl) phthalate(DEHP)	117-81-7	0.1% (1000 PPM)
Benzyl butyl phthalate(BBP)	85-68-7	0.1% (1000 PPM)
Dibutyl Phthalate(DBP)	84-74-2	0.1% (1000 PPM)
Diisobutyl Phthalate(DIBP)	84-69-5	0.1% (1000 PPM)

Banned Substances by RoHS Directive 2011/65/EU+2015/863/EU, EN50581:2012

OPHIT will continue to monitor any new amendments/changes to Directive and subsequently review our all products with regards to compliance. OPHIT will also ensure that any new information is communicated to its customers, suppliers and stakeholders as required.

Signature : Jong-Kook, Moon

Jong-kook, Moon

Title/Issue date : President/July.22.2019

10. REACH

The European REACH Regulation 1907/2006 on Registration, Evaluation, Authorization, and Restriction of Chemicals(REACH), Annex XV II entered into Force in June 2009, and affects all companies producing, Importing, using, or placing Products on the European market. The aim of the REACH regulation is to ensure a high Level of protection of human health and the environment from chemical substances.

OPHIT Co., Ltd substances management system follow and complies with the current revision of the REACH Regulation on the substances as identified by ECHA(European Chemical Agency).

OPHIT Co., Ltd products are considered articles as defined in REACH Article 3(3). These products/articles under normal and reasonable conditions of use do not have intended release of substances. Therefore the requirement in REACH Article 7(1)(b) for registration of substances contained in these products/articles does not apply.

OPHIT Co., Ltd products/articles, do not contain **Substances of very High Concern** or if there **SVHC** in the product/article, the content is less than the 0.1%(wt/wt) as defined by REACH Article 57, Annex XIV, Directive 67/548/EEC. Therefore the requirement in REACH Article 7(2) to notify ECHA if a product/article contains more than 0.1% wt/wt of an SVHC and tonnage exceeding 1 tone per importer per year is not applicable.

OPHIT's European operations do not manufacture or import chemicals, therefore OPHIT Co., Ltd has no obligation to register substances.



Jong-Kook, Moon
President

OPHIT Co., Ltd ACCEPTS NO DUTY TO NOTIFY USERS OF THIS OF DECLARATION OF UPDATES OR CHANGES TO THIS DECLARATION.